



#8

SEQUENCE LISTING

21402-138 Erman, John L
Rastelli, Luca
Shimkets, Richard A

<120> Novel Proteins and Nucleic Acids Encoding Same and
Antibodies Directed Against these Proteins

<130> 21402-138

<140> 09/970,944

<141> 2001-10-04

<150> 60/237,862

<151> 2000-10-04

<160> 62

<170> PatentIn Ver. 2.1

<210> 1

<211> 2881

<212> DNA

<213> Homo sapiens

<400> 1

```
agctggggct cggggtgag gcgctaaagc cgccctcccg cccgcggggc cccgcgcccg 60
gcccgcgccg ctgcccgcgc gcggccatgg ccgtccggcc cggcctgtgg ccagcgctcc 120
tgggcatagt cctcgccgct tggctccgcg gctcgggtgc ccagcagagt gccaccgtgg 180
ccaacccagt gcctgggtgcc aaccgcgacc tgcttcccca ctctcctggtg gagcccgagg 240
atgtgtacat cgtcaagaac aagccagtgc tgcttgtgtg caaggccgtg cccgccacgc 300
agatcttctt caagtgaac ggggagtggg tggccaggt ggaccacgtg atcgagcgca 360
gcacagacgg gagcagtggg gagccgacca tggagggtccg cattaatgtc tcaaggcagc 420
aggctcgaaa ggtgttcggg ctggaggaat actggtgcca gtgcgtggca tggagctcct 480
cgggcaccac caagagtcag aaggcctaca tccgcatagc cagattgcgc aagaacttcg 540
agcaggagcc gctggccaag gaggtgtccc tggagcaggg catcgtgctg cctgcccgtc 600
caccggaggg catccctcca gccgaggtgg agtggctccg gaacgaggac ctgggtggacc 660
cgctccctgga ccccaatgta tacatcacgc gggagcacag cctggtggtg cgacaggccc 720
gccttgctga cacggccaac tacacctgcg tggccaagaa catcgtggca cgtcgccgca 780
gcgcctccgc tgcgtcatc gtctacgtga acggtgggtg gtcgacgtgg accgagtggg 840
ccgtctgcag cgccagctgt gggcgcggtt ggcagaaacg gagccggagc tgcaccaacc 900
cggcgccctc caacgggggc gctttctgtg aggggcagaa tgtccatgac cgcaccgtct 960
cctctctgct tgtctctgtg gacggcagct ggagcccgtg gagcaagtgg tcggcctgtg 1020
ggctggactg caccactgg cgagccgtg agtgcctctga cccagcacc cgcaacggag 1080
gggaggagtg ccagggcact gacctggaca cccgcaactg taccagtgc ctctgtgtac 1140
acagtgttc tggccctgag gacgtggccc tctatgtggg cctcatcgcc gtggccgtct 1200
gcctggtcct gctgctgctt gtcctcatcc tcgtttattg ccggaagaag gaggggctgg 1260
actcagatgt ggctgactcg tccattctca cctcaggctt ccagcccgtc agcatcaagc 1320
ccagcaaagc agacaacccc catctgtctc ccatccagcc ggacctcagc accaccacca 1380
cctaccaggg cagtctctgt ccccggcagg atgggcccag ccccaagttc cagctcacca 1440
atgggcacct gctcagcccc ctgggtggcg gccgccacac actgcaccac agctctccca 1500
cctctgaggc cgaggagtgc gtctcccgcc tctccacca gaactacttc cgctccctgc 1560
cccaggcac cagcaacatg acctatggga ccttcaactt cctcgggggc cggctgatga 1620
tccctaatac aggtatcagc etcctcatcc cccagatgc cataccccga ggggaagatct 1680
atgagatcta cctcacgtg cacaagccgg aagacgtgag gttgccccta gctggctgtc 1740
agaccctgct gagtcccatc gttagctgtg gacccctgg cgctctgtct acccggccag 1800
```

```

tcatacctggc tatggaccac tgtgggggagc ccagccctga cagctggagc ctgcgccctca 1860
aaaagcagtc gtgcgagggc agctggggagc aggatgtgct gcacctgggc gaggaggcgc 1920
cctccacact ctactactgc cagctggagg ccagtgcctg ctacgtcttc accgagcagc 1980
tgggcccgtt tgccctgggtg ggagaggccc tcagcgtggc tgccgccaag cgcctcaagc 2040
tgctttctgtt tgcgccggtg gcctgcacct ccctcgagta caacatccgg gtctactgcc 2100
tgcattgacac ccacgatgca ctcaaggagg tgggtgcagct ggagaagcag ctgggggggac 2160
agctgatcca ggagccacgg gtcctgcact tcaaggacag ttaccacaac ctgcgccctat 2220
ccatccacga tgtgccacgc tccctgtgga agagtaagct ccttgtcagc taccaggaga 2280
tcccccttta tcacatctgg aatggcacgc agcgggtactt gcactgcacc ttcaccctgg 2340
agcgtgtcag cccagcact agtgacctgg cctgcaagct gtgggtgtgg caggtggagg 2400
gcgacgggca gagcttcagc atcaacttca acatcaccaa ggacacaagg tttgtctgagc 2460
tgctggctct ggagagtga ggggggggtcc cagccctggg gggccccagt gccttcaaga 2520
tcccccttct cattcggcag aagataattt ccagcctgga cccaccctgt aggcgggggtg 2580
ccgactggcg gactctggcc cagaaactcc acctggacag ccattctcagc ttctttgcct 2640
ccaagcccag cccacacagc atgatactca acctgtggga ggcgcgccac ttcccccaacg 2700
gcaacctcag ccagctggct gcagcagtgg ctggactggg ccagccagac gctggcctct 2760
tcacagtgtc ggaggctgag tgctgaggcc ggccaggccc gacacctaca ctctcaccag 2820
ctttggcacc caccaaggac aggcagaagc cggacagggg cccttccccca caccggggag 2880
a
2881

```

<210> 2
 <211> 899
 <212> PRT
 <213> Homo sapiens

```

<400> 2
Met Ala Val Arg Pro Gly Leu Trp Pro Ala Leu Leu Gly Ile Val Leu
  1             5             10             15

Ala Ala Trp Leu Arg Gly Ser Gly Ala Gln Gln Ser Ala Thr Val Ala
  20             25             30

Asn Pro Val Pro Gly Ala Asn Pro Asp Leu Leu Pro His Phe Leu Val
  35             40             45

Glu Pro Glu Asp Val Tyr Ile Val Lys Asn Lys Pro Val Leu Leu Val
  50             55             60

Cys Lys Ala Val Pro Ala Thr Gln Ile Phe Phe Lys Cys Asn Gly Glu
  65             70             75             80

Trp Val Arg Gln Val Asp His Val Ile Glu Arg Ser Thr Asp Gly Ser
  85             90             95

Ser Gly Glu Pro Thr Met Glu Val Arg Ile Asn Val Ser Arg Gln Gln
  100            105            110

Val Glu Lys Val Phe Gly Leu Glu Glu Tyr Trp Cys Gln Cys Val Ala
  115            120            125

Trp Ser Ser Ser Gly Thr Thr Lys Ser Gln Lys Ala Tyr Ile Arg Ile
  130            135            140

Ala Arg Leu Arg Lys Asn Phe Glu Gln Glu Pro Leu Ala Lys Glu Val
  145            150            155            160

```

Ser Leu Glu Gln Gly Ile Val Leu Pro Cys Arg Pro Pro Glu Gly Ile
 165 170 175
 Pro Pro Ala Glu Val Glu Trp Leu Arg Asn Glu Asp Leu Val Asp Pro
 180 185 190
 Ser Leu Asp Pro Asn Val Tyr Ile Thr Arg Glu His Ser Leu Val Val
 195 200 205
 Arg Gln Ala Arg Leu Ala Asp Thr Ala Asn Tyr Thr Cys Val Ala Lys
 210 215 220
 Asn Ile Val Ala Arg Arg Arg Ser Ala Ser Ala Ala Val Ile Val Tyr
 225 230 235 240
 Val Asn Gly Gly Trp Ser Thr Trp Thr Glu Trp Ser Val Cys Ser Ala
 245 250 255
 Ser Cys Gly Arg Gly Trp Gln Lys Arg Ser Arg Ser Cys Thr Asn Pro
 260 265 270
 Ala Pro Leu Asn Gly Gly Ala Phe Cys Glu Gly Gln Asn Val His Asp
 275 280 285
 Arg Thr Val Ser Ser Leu Leu Val Ser Val Asp Gly Ser Trp Ser Pro
 290 295 300
 Trp Ser Lys Trp Ser Ala Cys Gly Leu Asp Cys Thr His Trp Arg Ser
 305 310 315 320
 Arg Glu Cys Ser Asp Pro Ala Pro Arg Asn Gly Gly Glu Glu Cys Gln
 325 330 335
 Gly Thr Asp Leu Asp Thr Arg Asn Cys Thr Ser Asp Leu Cys Val His
 340 345 350
 Ser Ala Ser Gly Pro Glu Asp Val Ala Leu Tyr Val Gly Leu Ile Ala
 355 360 365
 Val Ala Val Cys Leu Val Leu Leu Leu Val Leu Ile Leu Val Tyr
 370 375 380
 Cys Arg Lys Lys Glu Gly Leu Asp Ser Asp Val Ala Asp Ser Ser Ile
 385 390 395 400
 Leu Thr Ser Gly Phe Gln Pro Val Ser Ile Lys Pro Ser Lys Ala Asp
 405 410 415
 Asn Pro His Leu Leu Thr Ile Gln Pro Asp Leu Ser Thr Thr Thr Thr
 420 425 430
 Tyr Gln Gly Ser Leu Cys Pro Arg Gln Asp Gly Pro Ser Pro Lys Phe
 435 440 445
 Gln Leu Thr Asn Gly His Leu Leu Ser Pro Leu Gly Gly Gly Arg His
 450 455 460

Thr Leu His His Ser Ser Pro Thr Ser Glu Ala Glu Glu Phe Val Ser
 465 470 475 480
 Arg Leu Ser Thr Gln Asn Tyr Phe Arg Ser Leu Pro Arg Gly Thr Ser
 485 490 495
 Asn Met Thr Tyr Gly Thr Phe Asn Phe Leu Gly Gly Arg Leu Met Ile
 500 505 510
 Pro Asn Thr Gly Ile Ser Leu Leu Ile Pro Pro Asp Ala Ile Pro Arg
 515 520 525
 Gly Lys Ile Tyr Glu Ile Tyr Leu Thr Leu His Lys Pro Glu Asp Val
 530 535 540
 Arg Leu Pro Leu Ala Gly Cys Gln Thr Leu Leu Ser Pro Ile Val Ser
 545 550 555 560
 Cys Gly Pro Pro Gly Val Leu Leu Thr Arg Pro Val Ile Leu Ala Met
 565 570 575
 Asp His Cys Gly Glu Pro Ser Pro Asp Ser Trp Ser Leu Arg Leu Lys
 580 585 590
 Lys Gln Ser Cys Glu Gly Ser Trp Glu Gln Asp Val Leu His Leu Gly
 595 600 605
 Glu Glu Ala Pro Ser His Leu Tyr Tyr Cys Gln Leu Glu Ala Ser Ala
 610 615 620
 Cys Tyr Val Phe Thr Glu Gln Leu Gly Arg Phe Ala Leu Val Gly Glu
 625 630 635 640
 Ala Leu Ser Val Ala Ala Ala Lys Arg Leu Lys Leu Leu Leu Phe Ala
 645 650 655
 Pro Val Ala Cys Thr Ser Leu Glu Tyr Asn Ile Arg Val Tyr Cys Leu
 660 665 670
 His Asp Thr His Asp Ala Leu Lys Glu Val Val Gln Leu Glu Lys Gln
 675 680 685
 Leu Gly Gly Gln Leu Ile Gln Glu Pro Arg Val Leu His Phe Lys Asp
 690 695 700
 Ser Tyr His Asn Leu Arg Leu Ser Ile His Asp Val Pro Ser Ser Leu
 705 710 715 720
 Trp Lys Ser Lys Leu Leu Val Ser Tyr Gln Glu Ile Pro Phe Tyr His
 725 730 735
 Ile Trp Asn Gly Thr Gln Arg Tyr Leu His Cys Thr Phe Thr Leu Glu
 740 745 750
 Arg Val Ser Pro Ser Thr Ser Asp Leu Ala Cys Lys Leu Trp Val Trp
 755 760 765

Gln Val Glu Gly Asp Gly Gln Ser Phe Ser Ile Asn Phe Asn Ile Thr
 770 775 780
 Lys Asp Thr Arg Phe Ala Glu Leu Leu Ala Leu Glu Ser Glu Ala Gly
 785 790 795 800
 Val Pro Ala Leu Val Gly Pro Ser Ala Phe Lys Ile Pro Phe Leu Ile
 805 810 815
 Arg Gln Lys Ile Ile Ser Ser Leu Asp Pro Pro Cys Arg Arg Gly Ala
 820 825 830
 Asp Trp Arg Thr Leu Ala Gln Lys Leu His Leu Asp Ser His Leu Ser
 835 840 845
 Phe Phe Ala Ser Lys Pro Ser Pro Thr Ala Met Ile Leu Asn Leu Trp
 850 855 860
 Glu Ala Arg His Phe Pro Asn Gly Asn Leu Ser Gln Leu Ala Ala Ala
 865 870 875 880
 Val Ala Gly Leu Gly Gln Pro Asp Ala Gly Leu Phe Thr Val Ser Glu
 885 890 895

Ala Glu Cys

<210> 3

<211> 14536

<212> DNA

<213> Homo sapiens

<400> 3

```

ggagttttcc accatgacta ttgccctgct gggttttgcc atattcttgc tccattgtgc 60
gacctgtgag aagcctctag aagggtattct ctctctctct gcttggcact tcacacactc 120
ccattacaat gccaccatct atgaaaattc ttctcccaag acctatgtgg agagcttcga 180
gaaaatgggc atctacctcg cggagccaca gtgggcagtg aggtaccgga tcatctctgg 240
ggatgtggcc aatgtattta aaactgagga gtatgtgggt ggcaacttct gcttccctaag 300
aataaggaca aagagcagca acacagctct tctgaacaga gaggtgcgag acagctacac 360
ctcatcatc caagccacag agaagacctt ggagttggaa gctttgacct gtgtgggtgg 420
ccacatctg gaccagaatg acctgaagcc tctcttctct ccacctctgt acagagtcac 480
catctctgag gacatgcccc tgaagagccc catctgcaag gtgactgcca cagatgctga 540
tctaggccag aatgctgagt tctattatgc ctttaacaca aggtcagaga tgtttgccat 600
ccatcccacc agcgggtgtg tcaactgtggc tgggaagctt aacgtcacct ggcgaggaaa 660
gcatgagctc caggtgctag ctgtggaccg catgcgaaa atctctgagg gcaatgggtt 720
tggcagcctg gctgcacttg tggttcatgt ggagcctgcc ctcaggaagc cccagccat 780
tgcttcggtg gtggtgactc caccagacag caatgatggt accacctatg ccactgtact 840
ggtcgatgca aatagctcag gagctgaagt ggagtcagtg gaagttgttg gtggtgacct 900
tggaagcac ttcaaagcca tcaagtctta tgcccggagc aatgagttca gtttgggtgc 960
tgtcaaagac atcaactgga tggagtacct tcatgggttc aacctcagcc tccaggccag 1020
gagtgggagc ggcccttatt ttattccca gatcaggggc ttccacctac caccttccaa 1080
actgtcttcc ctcaaattcg agaaggctgt ttacagagtg cagcttagtg agttttcccc 1140
tcctggcagc cgcgtggtga tgggtgagagt caccacagcc ttccccaacc tgcagtatgt 1200
tctaaagcca tcttcagaga atgtaggatt taaacttaat gctcgaactg ggttgatcac 1260
caccacaaag ctcatggact tccacgacag agcccactat cagctacaca tcagaacctc 1320
accgggcccag gcctccaccg tggtggtcat tgacattgtg gactgcaaca accatgcccc 1380
  
```

| | | | | | | |
|-------------|-------------|-------------|-------------|-------------|-------------|------|
| cctcttcaac | aggtcttct | atgatggtac | cttggatgag | aacatccctc | caggcaccag | 1440 |
| tgttttggct | gtgactgcc | ctgaccggga | tcattgggaa | aatggatatg | tcacctattc | 1500 |
| cattgctgga | ccaaaagctt | tgccattttc | tattgacccc | tacctgggga | tcattctccac | 1560 |
| ctccaaaccc | atggactatg | aactcatgaa | aagaattttat | accttccggg | taagagcatc | 1620 |
| agactgggga | tccccctttc | gccgggagaa | ggaagtgtcc | atctttcttc | agctcaggaa | 1680 |
| cttgaatgac | aaccagccta | tgtttgaaga | agtcaactgt | acaggggtct | tccgccaaaga | 1740 |
| ctggccagta | gggaaatcga | taatgactat | gtcagccata | gatgtggatg | agcttcagaa | 1800 |
| cctaaaatac | gagattgtat | caggcaatga | actagagtat | tttgatctaa | atcattttctc | 1860 |
| cggagtata | tccctcaaac | gcccttttat | caatcttact | gctgggtcaac | ccaccagtta | 1920 |
| ttccctgaag | attacagcct | cagatggcaa | aaactatgcc | tcaccacaaa | ctttgaatat | 1980 |
| tactgtggtg | aaggaccctc | atcttgaagt | tcctgtaaca | tgtgataaaa | caggggtatt | 2040 |
| gacacaattc | acaaagacta | tcctccactt | tattgggctt | cagaaccagg | agtccagtga | 2100 |
| tgaggaaattc | acttctttta | gcacatatca | gattaatcat | tacacccac | agtttgagga | 2160 |
| ccacttcccc | caatccattg | atgtccttga | gagtgtccct | atcaacaccc | ccttggccccg | 2220 |
| cctagcagcc | actgaccctg | atgtcgtgtt | taatggcaaa | ctgggtctatg | tgattgcaga | 2280 |
| tggcaatgag | gagggctgct | ttgacataga | gctggagaca | gggctgctca | ctgtagctgc | 2340 |
| tccttgggac | tatgaagcca | ccaatttcta | catcctcaat | gtaacagtat | atgacctggg | 2400 |
| cacaccccag | aagtctctct | ggaagctgct | gacagtgaat | gtgaaagact | ggaatgacaa | 2460 |
| cgcacccaga | tttctctccg | gtgggtacca | gttaaccatc | tcggaggaca | cagaagtgtg | 2520 |
| aaccacaatt | gcagagctga | caaccaaaga | tgctgactcg | gaagacaatg | gcagggttcg | 2580 |
| ctacaccctg | ctaagtccca | cagagaagtt | ctccctccac | cctctcactg | gggaactggt | 2640 |
| tgttacagga | cacctggacc | gcgaatcaga | gcctcgggtac | atactcaagg | tggaggccag | 2700 |
| ggatcagccc | agcaaaggcc | accagctctt | ctctgtcact | gacctgataa | tcacattgga | 2760 |
| ggatgtcaac | gacaactctc | cccagtgcat | cacagaacac | aacaggctga | aggttccaga | 2820 |
| ggacctgccc | cccgggactg | tcttgacatt | tctggatgcc | tctgatcctg | acctgggccc | 2880 |
| cgcaggtgaa | gtgcgatatg | ttctgatgga | tggcgcccat | gggaccttcc | gggtggacct | 2940 |
| gatgacaggg | gcgctcattc | tggagagaga | gctggacttt | gagaggcgag | ctgggtacaa | 3000 |
| tctgagcctg | tgggccagtg | atgggtggag | gcccctagcc | cgcaggactc | tctgccatgt | 3060 |
| ggaggtgatc | gtcctggatg | tgaatgagaa | tctccacct | ccccactttg | cctccttcgt | 3120 |
| gcaccagggc | caggtgcagg | agaacagccc | ctcgggaact | caggtgattg | tagtggtctg | 3180 |
| ccaggacgat | gacagtggct | tggatgggga | gctccagtac | ttcctgcgtg | ctggcactgg | 3240 |
| actcgcagcc | ttcagcatca | accaagatac | aggaatgatt | cagactctgg | cacctctgga | 3300 |
| ccgagaattt | gcactcttact | actggttgac | ggtattagca | gtggacaggg | gttctgtgcc | 3360 |
| cctctcttct | gtaactgaag | tctacatcga | ggttacggat | gccaatgaca | acccacccca | 3420 |
| gatgtcccaa | gctgtgttct | acccctccat | ccaggaggat | gctcccgtgg | gcacctctgt | 3480 |
| gcttcaactg | gatgcctggg | accagactc | cagctccaaa | gggaagctga | ccttcaacat | 3540 |
| caccagtggg | aactacatgg | gattctttat | gattcacctt | gttacaggtc | tcctatctac | 3600 |
| agcccagcag | ctggacagag | agaacaagga | tgaacacatc | ctggagggtga | ctgtgctgga | 3660 |
| caatggggaa | ccctcactga | agtccacctc | caggggtggtg | gtaggcatct | tggacgtcaa | 3720 |
| tgacaatcca | cctatattct | cccacaagct | cttcaatgtc | cgccttccag | agaggctgag | 3780 |
| ccctgtgtcc | cctgggcctg | tgtacaggct | ggtggcttca | gacctggatg | agggctctta | 3840 |
| tggcagagtc | acctacagta | tcgaggacag | ctatgaggag | gccttcagta | tcgacctggt | 3900 |
| cacaggtgtg | gtttcatcca | acagcacttt | tacagctgga | gagtacaaca | tcctaacgat | 3960 |
| caaggcaaca | gacagtgggc | agccaccact | ctcagccagt | gtccggctac | acattgagtg | 4020 |
| gatcccttgg | ccccggcctg | cctccatccc | tctggccttt | gatgagacct | actacagctt | 4080 |
| tacggtcatg | gagacggacc | ctgtgaacca | catggtgggg | gtcatcagcg | tagagggcag | 4140 |
| acccggactc | ttctggttca | acatctcagg | tggggataag | gacatggact | ttgacattga | 4200 |
| gaagaccaca | ggcagcatcg | tcattgccag | gcctcttgat | accaggagaa | ggtcgaacta | 4260 |
| taacttgact | gttgagggtga | cagatgggtc | ccgcaccatt | gccacacagg | tcacatctt | 4320 |
| catgattgcc | aacattaacc | accatcggcc | ccagtttctg | gaaactcggt | atgaagtcag | 4380 |
| agttccccag | gacaccgtgc | caggggtaga | gtcctgcga | gtccaggcca | tagatcaaga | 4440 |
| caagggcaaa | agcctcatct | ataccataca | tggcagccaa | gacccaggaa | gtgccagcct | 4500 |
| cttccagctg | gacccaagca | gtggtgtcct | ggtaacgggtg | ggaaaattgg | acctcggctc | 4560 |
| ggggccctcc | cagcacacac | tgacagtcat | ggtccgagac | caggaaatac | ctatcaagag | 4620 |
| gaacttcgtg | tgggtgacca | ttcatgtgga | ggatggaaac | ctccaccac | cccgcttcac | 4680 |
| tcagctccat | tatgaggcaa | gtgttctctga | caccatagcc | cccggcacag | agctgctgca | 4740 |
| ggtccgagcc | atggatgctg | accggggagt | caatgctgag | gtccactact | ccctcctgaa | 4800 |

| | | | | | | |
|-------------|-------------|-------------|-------------|-------------|-------------|------|
| agggaaacagc | gaaggtttct | tcaacatcaa | tgccctgcta | ggcatcatta | ctctagctca | 4860 |
| aaagcttgat | caggcaaatc | atgccccaca | tactctgaca | gtgaaggcag | aagatcaagg | 4920 |
| ctccccacaa | tggcatgacc | tggctacagt | gatcattcat | gtctatccct | cagataggag | 4980 |
| tgcccccatc | ttttcaaaat | ctgagtactt | tgtagagatc | cctgaatcaa | tccctgttgg | 5040 |
| ttccccaatc | ctccttgtct | ctgctatgag | cccccttgaa | gttacctatg | agttaaagaga | 5100 |
| gggaaataag | gatggagtct | tctctatgaa | ctcatattct | ggccttattt | ccaccagaa | 5160 |
| gaaattggac | catgagaaaa | tctcgtctta | ccagctgaaa | atccgaggca | gcaatatggc | 5220 |
| aggtgcattt | actgatgtca | tgggtggtgg | tgacataatt | gatgaaaatg | acaatgctcc | 5280 |
| tatgttctta | aagtcaactt | ttgtgggcca | aattagttaa | gcagctccac | tgtatagcat | 5340 |
| gatcatggat | aaaaacaaca | acccctttgt | gattcatgcc | tctgacagtg | acaaagaagc | 5400 |
| taattccttg | ttggtctata | aaatttttga | gccggaggcc | ttgaagtttt | tcaaaattga | 5460 |
| tcccagcatg | ggaaccctaa | ccattgtatc | agagatggat | tatgagagca | tgccctcttt | 5520 |
| ccaattctgt | gtctatgtcc | atgaccaagg | aagccctgta | ttatttgcac | ccagacctgc | 5580 |
| ccaagtcatc | attcatgtca | gagatgtgaa | tgattccccct | cccagattct | cagaacagat | 5640 |
| atatgaggta | gcaatagtctg | ggcctatcca | tccaggcatg | gagcttctca | tggtgcgggc | 5700 |
| cagcgatgaa | gactcagaag | tcaattatag | catcaaaact | ggcaatgctg | atgaagctgt | 5760 |
| taccatccat | cctgtcactg | gtagcatatc | tgtgctgaat | cctgctttcc | tgggactctc | 5820 |
| tcggaagctc | accatcaggg | cttctgatgg | cttgtatcaa | gacactgctc | tggtaaaaat | 5880 |
| ttctttgacc | caagtgcctg | acaaaagctt | gcagtttgat | caggatgtct | actgggcagc | 5940 |
| tgtgaaggag | aacttgcagg | acagaaaggc | actggtgatt | cttgggtgcc | agggcaatca | 6000 |
| tttgaatgac | acccttttct | actttctctt | gaatggcaca | gatatgtttc | atatggtcca | 6060 |
| gtcagcaggt | gtgttgcaga | caagaggtgt | ggcgtttgac | cgggagcagc | aggacactca | 6120 |
| tgagttggca | gtggaagtga | gggacaatcg | gacacctcag | cgggtggctc | agggtttggt | 6180 |
| cagagtctct | attgaggatg | tcaatgacaa | tcccccaaaa | tttaagcatc | tgccctatta | 6240 |
| cacaatcatc | caagatggca | cagagccagg | ggatgtcctc | tttcagggtat | ctgccactga | 6300 |
| tgaggacttg | gggacaaatg | gggctgttac | atatgaattt | gcagaagatt | acacatatatt | 6360 |
| ccgaattgac | ccctatcttg | gggacatata | actcaagaaa | cccttttgatt | atcaagcttt | 6420 |
| aaataaatat | cacctcaaag | tcattgctcg | ggatggaggga | acgccatccc | tccagagtga | 6480 |
| ggaagaggta | cttgtcactg | tgagaaataa | atccaaccca | ctgtttcaga | gtccttatta | 6540 |
| caaagtcaga | gtacctgaaa | atatcacctc | ctatacccca | attctccaca | cccaggcccc | 6600 |
| gagtcagag | ggactccggc | tcactacaaa | cattgtggag | gaagaacctc | tgatgtgtgt | 6660 |
| caccactgac | ttcaagactg | gtgtcctaac | agtaacaggg | cctttggact | atgagtccaa | 6720 |
| gaccaaaccat | gtgttcacag | tcagagccac | ggatacagct | ctgggggtcat | tttctgaagc | 6780 |
| cacagtggaa | gtcctagtgg | aggatgtcaa | tgataacctc | cccacttttt | cccaattggt | 6840 |
| ctataccact | tccatctcag | aaggcttgcc | tgctcagacc | cctgtgatcc | aactgttggc | 6900 |
| ttctgaccag | gactcagggc | ggaaccgtga | cgtctcttat | cagattgtgg | aggatggctc | 6960 |
| agatgtttcc | aagttcttcc | agatcaatgg | gagcacaggg | gagatgtcca | cagttcaaga | 7020 |
| actggattat | gaagcccaac | aacactttca | tgtgaaagtc | agggccatgg | ataaaggaga | 7080 |
| tccccactc | actggtgaaa | cccttgtggt | tgtcaatgtg | tctgatataca | atgacaacct | 7140 |
| cccagagttc | agacaacctc | aatatgaagc | caatgtcagt | gaactggcaa | cctgtggaca | 7200 |
| cctggttctt | aaagtccagg | ctattgacct | tgacagcaga | gacacctccc | gcctggagta | 7260 |
| cctgattctt | tctggcaatc | aggacaggca | cttcttcatt | aacagctcat | cgggaataat | 7320 |
| ttctatgttc | aaccttttga | aaaagcacct | ggactcttct | tacaatttga | gggtaggtgc | 7380 |
| ttctgatgga | gtcttccgag | caactgtgcc | tgtgtacatc | aacactacaa | atgccaacaa | 7440 |
| gtacagccca | gagttccagc | agcaccttta | tgaggcagaa | ttagcagaga | atgcaatggt | 7500 |
| tggaaccaag | gtgattgatt | tgctagccat | agacaaagat | agtgggtccct | atggcactat | 7560 |
| agattatact | atcatcaata | aactagcaag | tgagaagttc | tccataaacc | ccaatggcca | 7620 |
| gattgccact | ctgcagaaac | tggatcgagg | aaattcaaca | gagagagtca | ttgctattaa | 7680 |
| ggtcatggct | cgggatggag | gaggaagagt | agccttctgc | acggtgaaga | tcactctcac | 7740 |
| agatgaaaat | gacaaccccc | cacagttcaa | agcatctgag | tacacagtat | ccattcaatc | 7800 |
| caatgtcagt | aaagactctc | cgggttatcca | ggtgttggcc | tatgatgcag | atgaaggtca | 7860 |
| gaacgcagat | gtcacctact | cagtgaacct | agaggacctc | gtgggattgg | aaaatcagac | 7920 |
| taaccacagtc | actggtgtgg | tcaaggtgaa | agacagcctg | gtgggattgg | aaaatcagac | 7980 |
| ccttgacttc | ttcatcaaa | cccaagatgg | aggccctcct | cactggaact | ctctggtgcc | 8040 |
| agtacgactt | caggtggttc | ctaaaaaagt | atccttaccg | aaattttctg | aacctttgta | 8100 |
| tactttctct | gcacctgaag | accttccaga | ggggtctgaa | attgggattg | ttaaagcagt | 8160 |
| ggcagctcaa | gatccagtca | tctacagtct | agtgcggggc | actacacctg | agagcaacaa | 8220 |

| | | | | | | |
|-------------|-------------|-------------|-------------|------------|-------------|-------|
| ggatggtgtc | ttctccctag | accagacac | aggggtcata | aaggtgagga | agcccatgga | 8280 |
| ccacgaatcc | accaaattgt | accagattga | tgtgatggca | cattgccttc | agaacactga | 8340 |
| tgtggtgtcc | ttggtctctg | tcaacatcca | agtgggagac | gtcaatgaca | ataggcctgt | 8400 |
| atgtgaggt | gatccatata | aggctgtcct | cactgagaat | atgccagtgg | ggacctcagt | 8460 |
| cattcaagt | actgccattg | acaaggacac | tgggagagat | ggccaggtga | gctacaggct | 8520 |
| gtctgcagac | cctggttagca | atgtccatga | gctctttgcc | attgacagt | agagtgggtg | 8580 |
| gatcaccaca | ctccaggaac | ttgactgtga | gacctgccag | acttatcatt | ttcatgtggt | 8640 |
| ggcctatgac | cacggacaga | ccatccagct | atcctctcag | gccctggttc | aggtctccat | 8700 |
| tacagatgag | aatgacaatg | ctccccgatt | tgcttctgaa | gagtacagag | gatctgtggt | 8760 |
| tgagaacagt | gagcctggcg | aactggtggc | gactctaaag | accctggatg | ctgacatttc | 8820 |
| tgagcagaac | aggcaggtca | cctgctacat | cacagaggga | gacccctgg | gccagtgttg | 8880 |
| catcagccaa | gttggagatg | agtggaggat | ttcctcaagg | aagaccctgg | accgcgagca | 8940 |
| tacagccaa | tacttgctca | gagtcacagc | atctgatggc | aagttccagg | cttcggtcac | 9000 |
| tgtggagatc | tttgtcctgg | acgtcaatga | taacagccca | cagtgttcac | agcttctcta | 9060 |
| tactggcaag | gttcatgaag | atgtatttcc | aggacacttc | atthtgaagg | tttctgccac | 9120 |
| agacttggac | actgatacca | atgtcagat | cacatattct | ctgcatggcc | ctggggcgca | 9180 |
| tgaattcaag | ctggatcctc | atacagggga | gctgaccaca | ctcactgccc | tagaccgaga | 9240 |
| aaggaaggat | gtgttcaacc | ttgttgccaa | ggcgacggat | ggaggtggcc | gatcgtgcca | 9300 |
| ggcagacatc | accctccatg | tggaggatgt | gaatgacaat | gccccgcggt | tcttccccag | 9360 |
| ccactgtgct | gtggctgtct | tcgacaacac | ccagtgaag | accctgtgg | ctgtagtatt | 9420 |
| tgccccggat | cccgaaccaag | gcgccaatgc | ccagtggtt | tactctctgc | cggattcagc | 9480 |
| cgaaggccac | ttttccatcg | acgccaccac | gggggtgatc | cgctggaaa | agccgctgca | 9540 |
| ggtcaggccc | caggcaccac | tggagctcac | ggtccgtgcc | tctgacctgg | gcaccccaat | 9600 |
| accgctgtcc | acgctgggca | ccgtcacagt | ctcggtggtg | ggcctagaag | actacctgcc | 9660 |
| cgtgttccctg | aacaccgagc | acagcgtgca | ggtgcccag | gacgccccac | ctggcacgga | 9720 |
| ggtgctgcag | ctggccaccc | tcactcgccc | ggcgcgagag | aagaccggct | accgctggt | 9780 |
| cagcgggaac | gagcaaggca | ggttccgcct | ggatgctcgc | acagggatcc | tgtatgtcaa | 9840 |
| cgcaagcctg | gactttgaga | caagcccaa | gtacttcctg | tccattgagt | gcagccggaa | 9900 |
| gagctcctct | tcctcagtg | acgtgaccac | agtcattggtc | aacatcactg | atgtcaatga | 9960 |
| acaccggccc | caattcccc | aagatccata | tagcacaagg | gtcttagaga | atgcccttgt | 10020 |
| gggtgacgtc | atcctcacgg | tatcagcgac | tgatgaagat | ggacccctaa | atagtacat | 10080 |
| tacctatagc | ctcataggag | ggaaccagct | tgggcacttc | accattcacc | ccaaaaagg | 10140 |
| ggagctacag | gtggccaagg | ccctggaccg | ggaacaggcc | tctagtatt | ccctgaagct | 10200 |
| ccgagccaca | gacagtgggc | agcctccact | gcattaggac | acagacatcg | ctatccaagt | 10260 |
| ggctgatgtc | aatgataacc | caccgagatt | cttccagctc | aactacagca | ccactgtcca | 10320 |
| ggagaactcc | cccattggca | gcaaagtcct | gcagctgata | ctgagtgacc | cagattctcc | 10380 |
| agagaatggc | ccccctact | cgtttcgaat | caccaagggg | aacaacggct | ctgccttccg | 10440 |
| agtgaccccg | gatggatggc | tggtagctgc | tgagggccta | agcaggagg | ctcaggaatg | 10500 |
| gtatcagctt | cagatccagg | cgtcagacag | tggcatccct | ccctctcgt | ctttgacgtc | 10560 |
| tgtccgtgtc | catgtcacag | agcagagcca | ctatgcacct | tctgctctcc | cactggagat | 10620 |
| cttcatcact | gttgagagag | atgagttcca | gggtggcatg | gtgggtaaga | tccatgccac | 10680 |
| agaccgagac | ccccaggaca | cgctgacct | tagcctggca | gaagaggaga | ccctgggcag | 10740 |
| gcacttctca | gtgggtgcgc | ctgatggcaa | gattatcgcc | gcccagggcc | tgctctggtg | 10800 |
| ccactactcg | ttcaacgtca | cggtcagcga | tgggaccttc | accacgactg | ctgggggtcca | 10860 |
| tgtgtacgtg | tggcatgtgg | ggcaggaggc | tctgcagcag | gccatgtgga | tgggcttcta | 10920 |
| ccagctcacc | cccaggagc | tggtagtgga | ccactggcgg | aacctgcaga | ggttctctag | 10980 |
| ccataagctg | gacatcaaac | gggctaaccat | tcacttggcc | agcctccagc | ctgcagaggc | 11040 |
| cgtggctggt | gtggatgtgc | tcttgggtctt | tgaggggcat | tctggaacct | tctacgagtt | 11100 |
| tcaggagcta | gcattccatca | tcactcactc | agccaaggag | atggagcatt | cagtgggggt | 11160 |
| tcagatgcgg | tcagctatgc | ccatgggtgcc | ctgccagggg | ccaacctgcc | agggtaaat | 11220 |
| ctgccataac | acagtgcata | tggaccccaa | ggttgggccc | acgtacagca | ccgccaggct | 11280 |
| cagcatccta | accccgcggc | accacctgca | gaggagctgc | tcttgcaatg | gtactgtctac | 11340 |
| aaggttcagt | ggtcagagct | atgtgcggta | cagggcccca | gcggctcgga | actggccat | 11400 |
| ccatttctat | ctgaaaacac | tccagccaca | ggccattctt | ctattcacca | atgaaacagc | 11460 |
| gtccgtctcc | ctgaagctgg | ccagtggagt | gccccagctg | gaataccact | gtctgggtgg | 11520 |
| tttctatgga | aacctttcct | cccagcgcca | tgtgaatgac | cacgagtggc | actccatcct | 11580 |
| ggtggaggag | atggacgctt | ccattcgctt | gatggttgac | agcatgggca | acacctccct | 11640 |

| | | | | | | |
|-------------|-------------|-------------|-------------|-------------|-------------|-------|
| tgtgggtccca | gagaactgcc | gtgggtctgag | gccccgaaagg | cacctcttgc | tgggcggcct | 11700 |
| cattctgttg | cattcttctc | cgaatgtctc | ccagggcctt | gaaggctgcc | tggatgctgt | 11760 |
| cgtgggtcaac | gaagaggctc | tagatctgct | ggccccctgg | aagacgggtg | caggcttgct | 11820 |
| ggagacacaa | gccctcacc | agtgtctgct | ccacagtgc | tactgcagcc | agaacacatg | 11880 |
| cctcaatggt | gggaagtgtc | catggaccca | tggggcaggc | tatgtctgca | aatgtcccc | 11940 |
| acagttctct | gggaagcact | gtgaacaagg | aagggagAAC | tgtacttttg | caccctgcct | 12000 |
| ggaaggtgga | acttgcaccc | tctcccccaa | aggagcttcc | tgtaactgcc | ctcactctta | 12060 |
| cacaggagac | aggtgtgaaa | tggaggcgag | gggttggttc | gaaggacact | gcctagtcac | 12120 |
| tcccagagac | caaagggggg | actgggggca | gcaggagtta | ctgatcatca | cagtggccgt | 12180 |
| ggcggttcatt | atcataagca | ctgtcgggct | tctcttctac | tgccgccgtt | gcaagtctca | 12240 |
| caagcctgtg | gccatggagg | acccagacct | cctggccagg | agtgttggtg | ttgacacca | 12300 |
| agccatgcct | gccatcgagc | tcaaccatt | gagtgcagc | tcctgcaaca | acctaacca | 12360 |
| accggaaccc | agcaaggcct | ctgttccaaa | tgaactcgtc | acatttgga | ccaattctaa | 12420 |
| gcaacggcca | gtgggtctgca | gtgtgcccc | cagactcccg | ccagctgcgg | tcccttccca | 12480 |
| ctctgacaat | gagcctgtca | ttaagagaac | ctgggtccagc | gaggagatgg | tgtaccctgg | 12540 |
| cgagagccatg | gtctggcccc | ctacttactc | caggaacgaa | cgctgggaat | acccccactc | 12600 |
| cgaagtgtact | cagggccctc | tgccgccctc | ggctcacccg | cactcaaccc | cagtcgtgat | 12660 |
| gccagagcct | aatggcctct | atgggggctt | ccccctccc | ctggagatgg | aaaacaagcg | 12720 |
| ggcacctctc | ccaccccggt | acagcaacca | gaacctggaa | gatctgatgc | cctctcgcc | 12780 |
| ccctagtccc | cgggagcgcc | tgggtgcccc | ctgtctcaat | gagtacacgg | ccatcagcta | 12840 |
| ctaccactcg | cagttccggc | agggaggggg | agggccctgc | ctggcagacg | ggggctacaa | 12900 |
| gggggtgggt | atgcgcctca | gccgagctgg | gccctcttat | gctgtctgtg | aggtggaggg | 12960 |
| ggcacctctt | gcaggccagg | gccagccccg | ggtgcccccc | aactatgagg | gctctgacat | 13020 |
| ggtggagagt | gattatggca | gctgtgagga | ggtcatgttc | tagcttccca | ttcccagagc | 13080 |
| aaggcaggcg | ggaggccaag | gactggactt | ggcttatttc | ttctgtctc | gtaggggggtg | 13140 |
| agttgagtgt | ggctgggaga | gtgggagggg | agccctcagc | ccaggctgtt | gtcccttgaa | 13200 |
| atgtgtctct | ccaatcccc | acctagtccc | tgagggtgga | gggaagctga | ggatagagct | 13260 |
| ccagaaacag | cactagggtc | ccaggagagg | ggcatttcta | gagcagtgc | cctggaaaac | 13320 |
| caggaacaat | tgactcctgg | ggtgggcgac | agacaggagg | gctccctgat | ctgccggctc | 13380 |
| tcagtcctcg | gggcaaagcc | tgattgactg | tgctggctca | acttcaccaa | gatgcattct | 13440 |
| catacctgcc | cacagctcca | ttttggaggc | aggcagggtg | gtgcctgaca | gacaaccact | 13500 |
| acgcggggcg | tacagaggag | ctctagaggg | ctgcgtggca | tcctcctagg | ggctgagagg | 13560 |
| tgagcagcag | gggagcgggc | acagtccct | ctgccccctg | ctcagtcgag | cactcactgt | 13620 |
| gtctttgtca | agtgtctgct | ccacgtcagg | cactgtgctt | tgcaccgggg | agaaaatgg | 13680 |
| gatggagggg | aacaaggact | ccgaggagca | ccaccaggcc | tcgggcccc | gaggtcccg | 13740 |
| tcctcagcct | acacgcagag | gaacggggcc | acctcagagt | cacaccactg | gctgccagtc | 13800 |
| agggcctgcc | aggagtctac | acagctctga | acctctcttg | ttaaagaatt | cagacctcat | 13860 |
| ggaactctgg | gttcttcatc | ccaagtctcc | caggcacttt | tggccaaaagg | aaggaaggaa | 13920 |
| ctaattcttc | attttaaaaa | ttcttaggca | ctttttgacc | ttgctgtctg | gatgagtttc | 13980 |
| ctcaatggga | tttttcttcc | ctagacacaa | ggaagtctga | actcctatct | agggccgggt | 14040 |
| ggaagcaggg | agctggaccg | cagtgtccag | gctggacacc | tgccattgcc | tcctctccac | 14100 |
| tgacagagcc | tgcccatcaa | gtattacctg | cagcgactca | accctatgca | tggagggtca | 14160 |
| atgtgggcac | atgtctacac | atgtgggtgc | ccatggatag | tacgtgtgta | cacatgtgta | 14220 |
| gagtgtatgt | agccaggagt | ggtggggacc | agaagcctct | gtggcctttg | gtgacctcac | 14280 |
| cactccctcc | caccagtcct | ctccctctgg | tccactgcct | tttcatatgt | gttgtttctg | 14340 |
| gagacagaag | tcaaaaggaa | gagcagtggg | gccttgcccc | cagggtgctg | gcttcatgct | 14400 |
| agaggagat | gtgtgggcga | gagccaattt | gtgtgagtgg | tttgtggctg | tgtgtgtgac | 14460 |
| tgtgagtgtg | agtgcagat | acatagtctt | attggctcatt | ttttttttta | acaataaagt | 14520 |
| atcttttttt | actggt | | | | | 14536 |

<210> 4
 <211> 4349
 <212> PRT
 <213> Homo sapiens

<400> 4

Met Thr Ile Ala Leu Leu Gly Phe Ala Ile Phe Leu Leu His Cys Ala
 1 5 10 15
 Thr Cys Glu Lys Pro Leu Glu Gly Ile Leu Ser Ser Ser Ala Trp His
 20 25 30
 Phe Thr His Ser His Tyr Asn Ala Thr Ile Tyr Glu Asn Ser Ser Pro
 35 40 45
 Lys Thr Tyr Val Glu Ser Phe Glu Lys Met Gly Ile Tyr Leu Ala Glu
 50 55 60
 Pro Gln Trp Ala Val Arg Tyr Arg Ile Ile Ser Gly Asp Val Ala Asn
 65 70 75 80
 Val Phe Lys Thr Glu Glu Tyr Val Val Gly Asn Phe Cys Phe Leu Arg
 85 90 95
 Ile Arg Thr Lys Ser Ser Asn Thr Ala Leu Leu Asn Arg Glu Val Arg
 100 105 110
 Asp Ser Tyr Thr Leu Ile Ile Gln Ala Thr Glu Lys Thr Leu Glu Leu
 115 120 125
 Glu Ala Leu Thr Arg Val Val Val His Ile Leu Asp Gln Asn Asp Leu
 130 135 140
 Lys Pro Leu Phe Ser Pro Pro Ser Tyr Arg Val Thr Ile Ser Glu Asp
 145 150 155 160
 Met Pro Leu Lys Ser Pro Ile Cys Lys Val Thr Ala Thr Asp Ala Asp
 165 170 175
 Leu Gly Gln Asn Ala Glu Phe Tyr Tyr Ala Phe Asn Thr Arg Ser Glu
 180 185 190
 Met Phe Ala Ile His Pro Thr Ser Gly Val Val Thr Val Ala Gly Lys
 195 200 205
 Leu Asn Val Thr Trp Arg Gly Lys His Glu Leu Gln Val Leu Ala Val
 210 215 220
 Asp Arg Met Arg Lys Ile Ser Glu Gly Asn Gly Phe Gly Ser Leu Ala
 225 230 235 240
 Ala Leu Val Val His Val Glu Pro Ala Leu Arg Lys Pro Pro Ala Ile
 245 250 255
 Ala Ser Val Val Val Thr Pro Pro Asp Ser Asn Asp Gly Thr Thr Tyr
 260 265 270
 Ala Thr Val Leu Val Asp Ala Asn Ser Ser Gly Ala Glu Val Glu Ser
 275 280 285
 Val Glu Val Val Gly Gly Asp Pro Gly Lys His Phe Lys Ala Ile Lys
 290 295 300

Ser Tyr Ala Arg Ser Asn Glu Phe Ser Leu Val Ser Val Lys Asp Ile
 305 310 315 320
 Asn Trp Met Glu Tyr Leu His Gly Phe Asn Leu Ser Leu Gln Ala Arg
 325 330 335
 Ser Gly Ser Gly Pro Tyr Phe Tyr Ser Gln Ile Arg Gly Phe His Leu
 340 345 350
 Pro Pro Ser Lys Leu Ser Ser Leu Lys Phe Glu Lys Ala Val Tyr Arg
 355 360 365
 Val Gln Leu Ser Glu Phe Ser Pro Pro Gly Ser Arg Val Val Met Val
 370 375 380
 Arg Val Thr Pro Ala Phe Pro Asn Leu Gln Tyr Val Leu Lys Pro Ser
 385 390 395 400
 Ser Glu Asn Val Gly Phe Lys Leu Asn Ala Arg Thr Gly Leu Ile Thr
 405 410 415
 Thr Thr Lys Leu Met Asp Phe His Asp Arg Ala His Tyr Gln Leu His
 420 425 430
 Ile Arg Thr Ser Pro Gly Gln Ala Ser Thr Val Val Val Ile Asp Ile
 435 440 445
 Val Asp Cys Asn Asn His Ala Pro Leu Phe Asn Arg Ser Ser Tyr Asp
 450 455 460
 Gly Thr Leu Asp Glu Asn Ile Pro Pro Gly Thr Ser Val Leu Ala Val
 465 470 475 480
 Thr Ala Thr Asp Arg Asp His Gly Glu Asn Gly Tyr Val Thr Tyr Ser
 485 490 495
 Ile Ala Gly Pro Lys Ala Leu Pro Phe Ser Ile Asp Pro Tyr Leu Gly
 500 505 510
 Ile Ile Ser Thr Ser Lys Pro Met Asp Tyr Glu Leu Met Lys Arg Ile
 515 520 525
 Tyr Thr Phe Arg Val Arg Ala Ser Asp Trp Gly Ser Pro Phe Arg Arg
 530 535 540
 Glu Lys Glu Val Ser Ile Phe Leu Gln Leu Arg Asn Leu Asn Asp Asn
 545 550 555 560
 Gln Pro Met Phe Glu Glu Val Asn Cys Thr Gly Ser Ile Arg Gln Asp
 565 570 575
 Trp Pro Val Gly Lys Ser Ile Met Thr Met Ser Ala Ile Asp Val Asp
 580 585 590
 Glu Leu Gln Asn Leu Lys Tyr Glu Ile Val Ser Gly Asn Glu Leu Glu
 595 600 605

Tyr Phe Asp Leu Asn His Phe Ser Gly Val Ile Ser Leu Lys Arg Pro
 610 615 620
 Phe Ile Asn Leu Thr Ala Gly Gln Pro Thr Ser Tyr Ser Leu Lys Ile
 625 630 635 640
 Thr Ala Ser Asp Gly Lys Asn Tyr Ala Ser Pro Thr Thr Leu Asn Ile
 645 650 655
 Thr Val Val Lys Asp Pro His Phe Glu Val Pro Val Thr Cys Asp Lys
 660 665 670
 Thr Gly Val Leu Thr Gln Phe Thr Lys Thr Ile Leu His Phe Ile Gly
 675 680 685
 Leu Gln Asn Gln Glu Ser Ser Asp Glu Glu Phe Thr Ser Leu Ser Thr
 690 695 700
 Tyr Gln Ile Asn His Tyr Thr Pro Gln Phe Glu Asp His Phe Pro Gln
 705 710 715 720
 Ser Ile Asp Val Leu Glu Ser Val Pro Ile Asn Thr Pro Leu Ala Arg
 725 730 735
 Leu Ala Ala Thr Asp Pro Asp Ala Gly Phe Asn Gly Lys Leu Val Tyr
 740 745 750
 Val Ile Ala Asp Gly Asn Glu Glu Gly Cys Phe Asp Ile Glu Leu Glu
 755 760 765
 Thr Gly Leu Leu Thr Val Ala Ala Pro Leu Asp Tyr Glu Ala Thr Asn
 770 775 780
 Phe Tyr Ile Leu Asn Val Thr Val Tyr Asp Leu Gly Thr Pro Gln Lys
 785 790 795 800
 Ser Ser Trp Lys Leu Leu Thr Val Asn Val Lys Asp Trp Asn Asp Asn
 805 810 815
 Ala Pro Arg Phe Pro Pro Gly Gly Tyr Gln Leu Thr Ile Ser Glu Asp
 820 825 830
 Thr Glu Val Gly Thr Thr Ile Ala Glu Leu Thr Thr Lys Asp Ala Asp
 835 840 845
 Ser Glu Asp Asn Gly Arg Val Arg Tyr Thr Leu Leu Ser Pro Thr Glu
 850 855 860
 Lys Phe Ser Leu His Pro Leu Thr Gly Glu Leu Val Val Thr Gly His
 865 870 875 880
 Leu Asp Arg Glu Ser Glu Pro Arg Tyr Ile Leu Lys Val Glu Ala Arg
 885 890 895
 Asp Gln Pro Ser Lys Gly His Gln Leu Phe Ser Val Thr Asp Leu Ile
 900 905 910

Ile Thr Leu Glu Asp Val Asn Asp Asn Ser Pro Gln Cys Ile Thr Glu
 915 920 925
 His Asn Arg Leu Lys Val Pro Glu Asp Leu Pro Pro Gly Thr Val Leu
 930 935 940
 Thr Phe Leu Asp Ala Ser Asp Pro Asp Leu Gly Pro Ala Gly Glu Val
 945 950 955 960
 Arg Tyr Val Leu Met Asp Gly Ala His Gly Thr Phe Arg Val Asp Leu
 965 970 975
 Met Thr Gly Ala Leu Ile Leu Glu Arg Glu Leu Asp Phe Glu Arg Arg
 980 985 990
 Ala Gly Tyr Asn Leu Ser Leu Trp Ala Ser Asp Gly Gly Arg Pro Leu
 995 1000 1005
 Ala Arg Arg Thr Leu Cys His Val Glu Val Ile Val Leu Asp Val Asn
 1010 1015 1020
 Glu Asn Leu His Pro Pro His Phe Ala Ser Phe Val His Gln Gly Gln
 1025 1030 1035 1040
 Val Gln Glu Asn Ser Pro Ser Gly Thr Gln Val Ile Val Val Ala Ala
 1045 1050 1055
 Gln Asp Asp Asp Ser Gly Leu Asp Gly Glu Leu Gln Tyr Phe Leu Arg
 1060 1065 1070
 Ala Gly Thr Gly Leu Ala Ala Phe Ser Ile Asn Gln Asp Thr Gly Met
 1075 1080 1085
 Ile Gln Thr Leu Ala Pro Leu Asp Arg Glu Phe Ala Ser Tyr Tyr Trp
 1090 1095 1100
 Leu Thr Val Leu Ala Val Asp Arg Gly Ser Val Pro Leu Ser Ser Val
 1105 1110 1115 1120
 Thr Glu Val Tyr Ile Glu Val Thr Asp Ala Asn Asp Asn Pro Pro Gln
 1125 1130 1135
 Met Ser Gln Ala Val Phe Tyr Pro Ser Ile Gln Glu Asp Ala Pro Val
 1140 1145 1150
 Gly Thr Ser Val Leu Gln Leu Asp Ala Trp Asp Pro Asp Ser Ser Ser
 1155 1160 1165
 Lys Gly Lys Leu Thr Phe Asn Ile Thr Ser Gly Asn Tyr Met Gly Phe
 1170 1175 1180
 Phe Met Ile His Pro Val Thr Gly Leu Leu Ser Thr Ala Gln Gln Leu
 1185 1190 1195 1200
 Asp Arg Glu Asn Lys Asp Glu His Ile Leu Glu Val Thr Val Leu Asp
 1205 1210 1215

Asn Gly Glu Pro Ser Leu Lys Ser Thr Ser Arg Val Val Val Gly Ile
 1220 1225 1230
 Leu Asp Val Asn Asp Asn Pro Pro Ile Phe Ser His Lys Leu Phe Asn
 1235 1240 1245
 Val Arg Leu Pro Glu Arg Leu Ser Pro Val Ser Pro Gly Pro Val Tyr
 1250 1255 1260
 Arg Leu Val Ala Ser Asp Leu Asp Glu Gly Leu Asn Gly Arg Val Thr
 1265 1270 1275 1280
 Tyr Ser Ile Glu Asp Ser Tyr Glu Glu Ala Phe Ser Ile Asp Leu Val
 1285 1290 1295
 Thr Gly Val Val Ser Ser Asn Ser Thr Phe Thr Ala Gly Glu Tyr Asn
 1300 1305 1310
 Ile Leu Thr Ile Lys Ala Thr Asp Ser Gly Gln Pro Pro Leu Ser Ala
 1315 1320 1325
 Ser Val Arg Leu His Ile Glu Trp Ile Pro Trp Pro Arg Pro Ser Ser
 1330 1335 1340
 Ile Pro Leu Ala Phe Asp Glu Thr Tyr Tyr Ser Phe Thr Val Met Glu
 1345 1350 1355 1360
 Thr Asp Pro Val Asn His Met Val Gly Val Ile Ser Val Glu Gly Arg
 1365 1370 1375
 Pro Gly Leu Phe Trp Phe Asn Ile Ser Gly Gly Asp Lys Asp Met Asp
 1380 1385 1390
 Phe Asp Ile Glu Lys Thr Thr Gly Ser Ile Val Ile Ala Arg Pro Leu
 1395 1400 1405
 Asp Thr Arg Arg Arg Ser Asn Tyr Asn Leu Thr Val Glu Val Thr Asp
 1410 1415 1420
 Gly Ser Arg Thr Ile Ala Thr Gln Val His Ile Phe Met Ile Ala Asn
 1425 1430 1435 1440
 Ile Asn His His Arg Pro Gln Phe Leu Glu Thr Arg Tyr Glu Val Arg
 1445 1450 1455
 Val Pro Gln Asp Thr Val Pro Gly Val Glu Leu Leu Arg Val Gln Ala
 1460 1465 1470
 Ile Asp Gln Asp Lys Gly Lys Ser Leu Ile Tyr Thr Ile His Gly Ser
 1475 1480 1485
 Gln Asp Pro Gly Ser Ala Ser Leu Phe Gln Leu Asp Pro Ser Ser Gly
 1490 1495 1500
 Val Leu Val Thr Val Gly Lys Leu Asp Leu Gly Ser Gly Pro Ser Gln
 1505 1510 1515 1520

His Thr Leu Thr Val Met Val Arg Asp Gln Glu Ile Pro Ile Lys Arg
 1525 1530 1535

Asn Phe Val Trp Val Thr Ile His Val Glu Asp Gly Asn Leu His Pro
 1540 1545 1550

Pro Arg Phe Thr Gln Leu His Tyr Glu Ala Ser Val Pro Asp Thr Ile
 1555 1560 1565

Ala Pro Gly Thr Glu Leu Leu Gln Val Arg Ala Met Asp Ala Asp Arg
 1570 1575 1580

Gly Val Asn Ala Glu Val His Tyr Ser Leu Leu Lys Gly Asn Ser Glu
 1585 1590 1595 1600

Gly Phe Phe Asn Ile Asn Ala Leu Leu Gly Ile Ile Thr Leu Ala Gln
 1605 1610 1615

Lys Leu Asp Gln Ala Asn His Ala Pro His Thr Leu Thr Val Lys Ala
 1620 1625 1630

Glu Asp Gln Gly Ser Pro Gln Trp His Asp Leu Ala Thr Val Ile Ile
 1635 1640 1645

His Val Tyr Pro Ser Asp Arg Ser Ala Pro Ile Phe Ser Lys Ser Glu
 1650 1655 1660

Tyr Phe Val Glu Ile Pro Glu Ser Ile Pro Val Gly Ser Pro Ile Leu
 1665 1670 1675 1680

Leu Val Ser Ala Met Ser Pro Ser Glu Val Thr Tyr Glu Leu Arg Glu
 1685 1690 1695

Gly Asn Lys Asp Gly Val Phe Ser Met Asn Ser Tyr Ser Gly Leu Ile
 1700 1705 1710

Ser Thr Gln Lys Lys Leu Asp His Glu Lys Ile Ser Ser Tyr Gln Leu
 1715 1720 1725

Lys Ile Arg Gly Ser Asn Met Ala Gly Ala Phe Thr Asp Val Met Val
 1730 1735 1740

Val Val Asp Ile Ile Asp Glu Asn Asp Asn Ala Pro Met Phe Leu Lys
 1745 1750 1755 1760

Ser Thr Phe Val Gly Gln Ile Ser Glu Ala Ala Pro Leu Tyr Ser Met
 1765 1770 1775

Ile Met Asp Lys Asn Asn Asn Pro Phe Val Ile His Ala Ser Asp Ser
 1780 1785 1790

Asp Lys Glu Ala Asn Ser Leu Leu Val Tyr Lys Ile Leu Glu Pro Glu
 1795 1800 1805

Ala Leu Lys Phe Phe Lys Ile Asp Pro Ser Met Gly Thr Leu Thr Ile
 1810 1815 1820

Val Ser Glu Met Asp Tyr Glu Ser Met Pro Ser Phe Gln Phe Cys Val
 1825 1830 1835 1840

Tyr Val His Asp Gln Gly Ser Pro Val Leu Phe Ala Pro Arg Pro Ala
 1845 1850 1855

Gln Val Ile Ile His Val Arg Asp Val Asn Asp Ser Pro Pro Arg Phe
 1860 1865 1870

Ser Glu Gln Ile Tyr Glu Val Ala Ile Val Gly Pro Ile His Pro Gly
 1875 1880 1885

Met Glu Leu Leu Met Val Arg Ala Ser Asp Glu Asp Ser Glu Val Asn
 1890 1895 1900

Tyr Ser Ile Lys Thr Gly Asn Ala Asp Glu Ala Val Thr Ile His Pro
 1905 1910 1915 1920

Val Thr Gly Ser Ile Ser Val Leu Asn Pro Ala Phe Leu Gly Leu Ser
 1925 1930 1935

Arg Lys Leu Thr Ile Arg Ala Ser Asp Gly Leu Tyr Gln Asp Thr Ala
 1940 1945 1950

Leu Val Lys Ile Ser Leu Thr Gln Val Leu Asp Lys Ser Leu Gln Phe
 1955 1960 1965

Asp Gln Asp Val Tyr Trp Ala Ala Val Lys Glu Asn Leu Gln Asp Arg
 1970 1975 1980

Lys Ala Leu Val Ile Leu Gly Ala Gln Gly Asn His Leu Asn Asp Thr
 1985 1990 1995 2000

Leu Ser Tyr Phe Leu Leu Asn Gly Thr Asp Met Phe His Met Val Gln
 2005 2010 2015

Ser Ala Gly Val Leu Gln Thr Arg Gly Val Ala Phe Asp Arg Glu Gln
 2020 2025 2030

Gln Asp Thr His Glu Leu Ala Val Glu Val Arg Asp Asn Arg Thr Pro
 2035 2040 2045

Gln Arg Val Ala Gln Gly Leu Val Arg Val Ser Ile Glu Asp Val Asn
 2050 2055 2060

Asp Asn Pro Pro Lys Phe Lys His Leu Pro Tyr Tyr Thr Ile Ile Gln
 2065 2070 2075 2080

Asp Gly Thr Glu Pro Gly Asp Val Leu Phe Gln Val Ser Ala Thr Asp
 2085 2090 2095

Glu Asp Leu Gly Thr Asn Gly Ala Val Thr Tyr Glu Phe Ala Glu Asp
 2100 2105 2110

Tyr Thr Tyr Phe Arg Ile Asp Pro Tyr Leu Gly Asp Ile Ser Leu Lys
 2115 2120 2125

Lys Pro Phe Asp Tyr Gln Ala Leu Asn Lys Tyr His Leu Lys Val Ile
 2130 2135 2140

Ala Arg Asp Gly Gly Thr Pro Ser Leu Gln Ser Glu Glu Glu Val Leu
 2145 2150 2155 2160

Val Thr Val Arg Asn Lys Ser Asn Pro Leu Phe Gln Ser Pro Tyr Tyr
 2165 2170 2175

Lys Val Arg Val Pro Glu Asn Ile Thr Leu Tyr Thr Pro Ile Leu His
 2180 2185 2190

Thr Gln Ala Arg Ser Pro Glu Gly Leu Arg Leu Ile Tyr Asn Ile Val
 2195 2200 2205

Glu Glu Glu Pro Leu Met Leu Phe Thr Thr Asp Phe Lys Thr Gly Val
 2210 2215 2220

Leu Thr Val Thr Gly Pro Leu Asp Tyr Glu Ser Lys Thr Lys His Val
 2225 2230 2235 2240

Phe Thr Val Arg Ala Thr Asp Thr Ala Leu Gly Ser Phe Ser Glu Ala
 2245 2250 2255

Thr Val Glu Val Leu Val Glu Asp Val Asn Asp Asn Pro Pro Thr Phe
 2260 2265 2270

Ser Gln Leu Val Tyr Thr Thr Ser Ile Ser Glu Gly Leu Pro Ala Gln
 2275 2280 2285

Thr Pro Val Ile Gln Leu Leu Ala Ser Asp Gln Asp Ser Gly Arg Asn
 2290 2295 2300

Arg Asp Val Ser Tyr Gln Ile Val Glu Asp Gly Ser Asp Val Ser Lys
 2305 2310 2315 2320

Phe Phe Gln Ile Asn Gly Ser Thr Gly Glu Met Ser Thr Val Gln Glu
 2325 2330 2335

Leu Asp Tyr Glu Ala Gln Gln His Phe His Val Lys Val Arg Ala Met
 2340 2345 2350

Asp Lys Gly Asp Pro Pro Leu Thr Gly Glu Thr Leu Val Val Val Asn
 2355 2360 2365

Val Ser Asp Ile Asn Asp Asn Pro Pro Glu Phe Arg Gln Pro Gln Tyr
 2370 2375 2380

Glu Ala Asn Val Ser Glu Leu Ala Thr Cys Gly His Leu Val Leu Lys
 2385 2390 2395 2400

Val Gln Ala Ile Asp Pro Asp Ser Arg Asp Thr Ser Arg Leu Glu Tyr
 2405 2410 2415

Leu Ile Leu Ser Gly Asn Gln Asp Arg His Phe Phe Ile Asn Ser Ser
 2420 2425 2430

Ser Gly Ile Ile Ser Met Phe Asn Leu Cys Lys Lys His Leu Asp Ser
 2435 2440 2445
 Ser Tyr Asn Leu Arg Val Gly Ala Ser Asp Gly Val Phe Arg Ala Thr
 2450 2455 2460
 Val Pro Val Tyr Ile Asn Thr Thr Asn Ala Asn Lys Tyr Ser Pro Glu
 2465 2470 2475 2480
 Phe Gln Gln His Leu Tyr Glu Ala Glu Leu Ala Glu Asn Ala Met Val
 2485 2490 2495
 Gly Thr Lys Val Ile Asp Leu Leu Ala Ile Asp Lys Asp Ser Gly Pro
 2500 2505 2510
 Tyr Gly Thr Ile Asp Tyr Thr Ile Ile Asn Lys Leu Ala Ser Glu Lys
 2515 2520 2525
 Phe Ser Ile Asn Pro Asn Gly Gln Ile Ala Thr Leu Gln Lys Leu Asp
 2530 2535 2540
 Arg Glu Asn Ser Thr Glu Arg Val Ile Ala Ile Lys Val Met Ala Arg
 2545 2550 2555 2560
 Asp Gly Gly Gly Arg Val Ala Phe Cys Thr Val Lys Ile Ile Leu Thr
 2565 2570 2575
 Asp Glu Asn Asp Asn Pro Pro Gln Phe Lys Ala Ser Glu Tyr Thr Val
 2580 2585 2590
 Ser Ile Gln Ser Asn Val Ser Lys Asp Ser Pro Val Ile Gln Val Leu
 2595 2600 2605
 Ala Tyr Asp Ala Asp Glu Gly Gln Asn Ala Asp Val Thr Tyr Ser Val
 2610 2615 2620
 Asn Pro Glu Asp Leu Val Lys Asp Val Ile Glu Ile Asn Pro Val Thr
 2625 2630 2635 2640
 Gly Val Val Lys Val Lys Asp Ser Leu Val Gly Leu Glu Asn Gln Thr
 2645 2650 2655
 Leu Asp Phe Phe Ile Lys Ala Gln Asp Gly Gly Pro Pro His Trp Asn
 2660 2665 2670
 Ser Leu Val Pro Val Arg Leu Gln Val Val Pro Lys Lys Val Ser Leu
 2675 2680 2685
 Pro Lys Phe Ser Glu Pro Leu Tyr Thr Phe Ser Ala Pro Glu Asp Leu
 2690 2695 2700
 Pro Glu Gly Ser Glu Ile Gly Ile Val Lys Ala Val Ala Ala Gln Asp
 2705 2710 2715 2720
 Pro Val Ile Tyr Ser Leu Val Arg Gly Thr Thr Pro Glu Ser Asn Lys
 2725 2730 2735

Asp Gly Val Phe Ser Leu Asp Pro Asp Thr Gly Val Ile Lys Val Arg
 2740 2745 2750
 Lys Pro Met Asp His Glu Ser Thr Lys Leu Tyr Gln Ile Asp Val Met
 2755 2760 2765
 Ala His Cys Leu Gln Asn Thr Asp Val Val Ser Leu Val Ser Val Asn
 2770 2775 2780
 Ile Gln Val Gly Asp Val Asn Asp Asn Arg Pro Val Phe Glu Ala Asp
 2785 2790 2795 2800
 Pro Tyr Lys Ala Val Leu Thr Glu Asn Met Pro Val Gly Thr Ser Val
 2805 2810 2815
 Ile Gln Val Thr Ala Ile Asp Lys Asp Thr Gly Arg Asp Gly Gln Val
 2820 2825 2830
 Ser Tyr Arg Leu Ser Ala Asp Pro Gly Ser Asn Val His Glu Leu Phe
 2835 2840 2845
 Ala Ile Asp Ser Glu Ser Gly Trp Ile Thr Thr Leu Gln Glu Leu Asp
 2850 2855 2860
 Cys Glu Thr Cys Gln Thr Tyr His Phe His Val Val Ala Tyr Asp His
 2865 2870 2875 2880
 Gly Gln Thr Ile Gln Leu Ser Ser Gln Ala Leu Val Gln Val Ser Ile
 2885 2890 2895
 Thr Asp Glu Asn Asp Asn Ala Pro Arg Phe Ala Ser Glu Glu Tyr Arg
 2900 2905 2910
 Gly Ser Val Val Glu Asn Ser Glu Pro Gly Glu Leu Val Ala Thr Leu
 2915 2920 2925
 Lys Thr Leu Asp Ala Asp Ile Ser Glu Gln Asn Arg Gln Val Thr Cys
 2930 2935 2940
 Tyr Ile Thr Glu Gly Asp Pro Leu Gly Gln Phe Gly Ile Ser Gln Val
 2945 2950 2955 2960
 Gly Asp Glu Trp Arg Ile Ser Ser Arg Lys Thr Leu Asp Arg Glu His
 2965 2970 2975
 Thr Ala Lys Tyr Leu Leu Arg Val Thr Ala Ser Asp Gly Lys Phe Gln
 2980 2985 2990
 Ala Ser Val Thr Val Glu Ile Phe Val Leu Asp Val Asn Asp Asn Ser
 2995 3000 3005
 Pro Gln Cys Ser Gln Leu Leu Tyr Thr Gly Lys Val His Glu Asp Val
 3010 3015 3020
 Phe Pro Gly His Phe Ile Leu Lys Val Ser Ala Thr Asp Leu Asp Thr
 3025 3030 3035 3040

Asp Thr Asn Ala Gln Ile Thr Tyr Ser Leu His Gly Pro Gly Ala His
 3045 3050 3055
 Glu Phe Lys Leu Asp Pro His Thr Gly Glu Leu Thr Thr Leu Thr Ala
 3060 3065 3070
 Leu Asp Arg Glu Arg Lys Asp Val Phe Asn Leu Val Ala Lys Ala Thr
 3075 3080 3085
 Asp Gly Gly Gly Arg Ser Cys Gln Ala Asp Ile Thr Leu His Val Glu
 3090 3095 3100
 Asp Val Asn Asp Asn Ala Pro Arg Phe Phe Pro Ser His Cys Ala Val
 3105 3110 3115 3120
 Ala Val Phe Asp Asn Thr Thr Val Lys Thr Pro Val Ala Val Val Phe
 3125 3130 3135
 Ala Arg Asp Pro Asp Gln Gly Ala Asn Ala Gln Val Val Tyr Ser Leu
 3140 3145 3150
 Pro Asp Ser Ala Glu Gly His Phe Ser Ile Asp Ala Thr Thr Gly Val
 3155 3160 3165
 Ile Arg Leu Glu Lys Pro Leu Gln Val Arg Pro Gln Ala Pro Leu Glu
 3170 3175 3180
 Leu Thr Val Arg Ala Ser Asp Leu Gly Thr Pro Ile Pro Leu Ser Thr
 3185 3190 3195 3200
 Leu Gly Thr Val Thr Val Ser Val Val Gly Leu Glu Asp Tyr Leu Pro
 3205 3210 3215
 Val Phe Leu Asn Thr Glu His Ser Val Gln Val Pro Glu Asp Ala Pro
 3220 3225 3230
 Pro Gly Thr Glu Val Leu Gln Leu Ala Thr Leu Thr Arg Pro Gly Ala
 3235 3240 3245
 Glu Lys Thr Gly Tyr Arg Val Val Ser Gly Asn Glu Gln Gly Arg Phe
 3250 3255 3260
 Arg Leu Asp Ala Arg Thr Gly Ile Leu Tyr Val Asn Ala Ser Leu Asp
 3265 3270 3275 3280
 Phe Glu Thr Ser Pro Lys Tyr Phe Leu Ser Ile Glu Cys Ser Arg Lys
 3285 3290 3295
 Ser Ser Ser Ser Leu Ser Asp Val Thr Thr Val Met Val Asn Ile Thr
 3300 3305 3310
 Asp Val Asn Glu His Arg Pro Gln Phe Pro Gln Asp Pro Tyr Ser Thr
 3315 3320 3325
 Arg Val Leu Glu Asn Ala Leu Val Gly Asp Val Ile Leu Thr Val Ser
 3330 3335 3340

Ala Thr Asp Glu Asp Gly Pro Leu Asn Ser Asp Ile Thr Tyr Ser Leu
 3345 3350 3355 3360

Ile Gly Gly Asn Gln Leu Gly His Phe Thr Ile His Pro Lys Lys Gly
 3365 3370 3375

Glu Leu Gln Val Ala Lys Ala Leu Asp Arg Glu Gln Ala Ser Ser Tyr
 3380 3385 3390

Ser Leu Lys Leu Arg Ala Thr Asp Ser Gly Gln Pro Pro Leu His Glu
 3395 3400 3405

Asp Thr Asp Ile Ala Ile Gln Val Ala Asp Val Asn Asp Asn Pro Pro
 3410 3415 3420

Arg Phe Phe Gln Leu Asn Tyr Ser Thr Thr Val Gln Glu Asn Ser Pro
 3425 3430 3435 3440

Ile Gly Ser Lys Val Leu Gln Leu Ile Leu Ser Asp Pro Asp Ser Pro
 3445 3450 3455

Glu Asn Gly Pro Pro Tyr Ser Phe Arg Ile Thr Lys Gly Asn Asn Gly
 3460 3465 3470

Ser Ala Phe Arg Val Thr Pro Asp Gly Trp Leu Val Thr Ala Glu Gly
 3475 3480 3485

Leu Ser Arg Arg Ala Gln Glu Trp Tyr Gln Leu Gln Ile Gln Ala Ser
 3490 3495 3500

Asp Ser Gly Ile Pro Pro Leu Ser Ser Leu Thr Ser Val Arg Val His
 3505 3510 3515 3520

Val Thr Glu Gln Ser His Tyr Ala Pro Ser Ala Leu Pro Leu Glu Ile
 3525 3530 3535

Phe Ile Thr Val Gly Glu Asp Glu Phe Gln Gly Gly Met Val Gly Lys
 3540 3545 3550

Ile His Ala Thr Asp Arg Asp Pro Gln Asp Thr Leu Thr Tyr Ser Leu
 3555 3560 3565

Ala Glu Glu Glu Thr Leu Gly Arg His Phe Ser Val Gly Ala Pro Asp
 3570 3575 3580

Gly Lys Ile Ile Ala Ala Gln Gly Leu Pro Arg Gly His Tyr Ser Phe
 3585 3590 3595 3600

Asn Val Thr Val Ser Asp Gly Thr Phe Thr Thr Thr Ala Gly Val His
 3605 3610 3615

Val Tyr Val Trp His Val Gly Gln Glu Ala Leu Gln Gln Ala Met Trp
 3620 3625 3630

Met Gly Phe Tyr Gln Leu Thr Pro Glu Glu Leu Val Ser Asp His Trp
 3635 3640 3645

Arg Asn Leu Gln Arg Phe Leu Ser His Lys Leu Asp Ile Lys Arg Ala
 3650 3655 3660

Asn Ile His Leu Ala Ser Leu Gln Pro Ala Glu Ala Val Ala Gly Val
 3665 3670 3675 3680

Asp Val Leu Leu Val Phe Glu Gly His Ser Gly Thr Phe Tyr Glu Phe
 3685 3690 3695

Gln Glu Leu Ala Ser Ile Ile Thr His Ser Ala Lys Glu Met Glu His
 3700 3705 3710

Ser Val Gly Val Gln Met Arg Ser Ala Met Pro Met Val Pro Cys Gln
 3715 3720 3725

Gly Pro Thr Cys Gln Gly Gln Ile Cys His Asn Thr Val His Leu Asp
 3730 3735 3740

Pro Lys Val Gly Pro Thr Tyr Ser Thr Ala Arg Leu Ser Ile Leu Thr
 3745 3750 3755 3760

Pro Arg His His Leu Gln Arg Ser Cys Ser Cys Asn Gly Thr Ala Thr
 3765 3770 3775

Arg Phe Ser Gly Gln Ser Tyr Val Arg Tyr Arg Ala Pro Ala Ala Arg
 3780 3785 3790

Asn Trp His Ile His Phe Tyr Leu Lys Thr Leu Gln Pro Gln Ala Ile
 3795 3800 3805

Leu Leu Phe Thr Asn Glu Thr Ala Ser Val Ser Leu Lys Leu Ala Ser
 3810 3815 3820

Gly Val Pro Gln Leu Glu Tyr His Cys Leu Gly Gly Phe Tyr Gly Asn
 3825 3830 3835 3840

Leu Ser Ser Gln Arg His Val Asn Asp His Glu Trp His Ser Ile Leu
 3845 3850 3855

Val Glu Glu Met Asp Ala Ser Ile Arg Leu Met Val Asp Ser Met Gly
 3860 3865 3870

Asn Thr Ser Leu Val Val Pro Glu Asn Cys Arg Gly Leu Arg Pro Glu
 3875 3880 3885

Arg His Leu Leu Leu Gly Gly Leu Ile Leu Leu His Ser Ser Ser Asn
 3890 3895 3900

Val Ser Gln Gly Phe Glu Gly Cys Leu Asp Ala Val Val Val Asn Glu
 3905 3910 3915 3920

Glu Ala Leu Asp Leu Leu Ala Pro Gly Lys Thr Val Ala Gly Leu Leu
 3925 3930 3935

Glu Thr Gln Ala Leu Thr Gln Cys Cys Leu His Ser Asp Tyr Cys Ser
 3940 3945 3950

Gln Asn Thr Cys Leu Asn Gly Gly Lys Cys Ser Trp Thr His Gly Ala
 3955 3960 3965

Gly Tyr Val Cys Lys Cys Pro Pro Gln Phe Ser Gly Lys His Cys Glu
 3970 3975 3980

Gln Gly Arg Glu Asn Cys Thr Phe Ala Pro Cys Leu Glu Gly Gly Thr
 3985 3990 3995 4000

Cys Ile Leu Ser Pro Lys Gly Ala Ser Cys Asn Cys Pro His Pro Tyr
 4005 4010 4015

Thr Gly Asp Arg Cys Glu Met Glu Ala Arg Gly Cys Ser Glu Gly His
 4020 4025 4030

Cys Leu Val Thr Pro Glu Ile Gln Arg Gly Asp Trp Gly Gln Gln Glu
 4035 4040 4045

Leu Leu Ile Ile Thr Val Ala Val Ala Phe Ile Ile Ile Ser Thr Val
 4050 4055 4060

Gly Leu Leu Phe Tyr Cys Arg Arg Cys Lys Ser His Lys Pro Val Ala
 4065 4070 4075 4080

Met Glu Asp Pro Asp Leu Leu Ala Arg Ser Val Gly Val Asp Thr Gln
 4085 4090 4095

Ala Met Pro Ala Ile Glu Leu Asn Pro Leu Ser Ala Ser Ser Cys Asn
 4100 4105 4110

Asn Leu Asn Gln Pro Glu Pro Ser Lys Ala Ser Val Pro Asn Glu Leu
 4115 4120 4125

Val Thr Phe Gly Pro Asn Ser Lys Gln Arg Pro Val Val Cys Ser Val
 4130 4135 4140

Pro Pro Arg Leu Pro Pro Ala Ala Val Pro Ser His Ser Asp Asn Glu
 4145 4150 4155 4160

Pro Val Ile Lys Arg Thr Trp Ser Ser Glu Glu Met Val Tyr Pro Gly
 4165 4170 4175

Gly Ala Met Val Trp Pro Pro Thr Tyr Ser Arg Asn Glu Arg Trp Glu
 4180 4185 4190

Tyr Pro His Ser Glu Val Thr Gln Gly Pro Leu Pro Pro Ser Ala His
 4195 4200 4205

Arg His Ser Thr Pro Val Val Met Pro Glu Pro Asn Gly Leu Tyr Gly
 4210 4215 4220

Gly Phe Pro Phe Pro Leu Glu Met Glu Asn Lys Arg Ala Pro Leu Pro
 4225 4230 4235 4240

Pro Arg Tyr Ser Asn Gln Asn Leu Glu Asp Leu Met Pro Ser Arg Pro
 4245 4250 4255

Pro Ser Pro Arg Glu Arg Leu Val Ala Pro Cys Leu Asn Glu Tyr Thr
 4260 4265 4270

Ala Ile Ser Tyr Tyr His Ser Gln Phe Arg Gln Gly Gly Gly Gly Pro
 4275 4280 4285

Cys Leu Ala Asp Gly Gly Tyr Lys Gly Val Gly Met Arg Leu Ser Arg
 4290 4295 4300

Ala Gly Pro Ser Tyr Ala Val Cys Glu Val Glu Gly Ala Pro Leu Ala
 4305 4310 4315 4320

Gly Gln Gly Gln Pro Arg Val Pro Pro Asn Tyr Glu Gly Ser Asp Met
 4325 4330 4335

Val Glu Ser Asp Tyr Gly Ser Cys Glu Glu Val Met Phe
 4340 4345

<210> 5
 <211> 3381
 <212> DNA
 <213> Homo sapiens

<400> 5

| | | | | | | |
|-------------|------------|-------------|------------|------------|-------------|------|
| ctagaattca | gcggccgctt | aattcagaac | ggccccctgc | cactgccagg | aggacggcat | 60 |
| catgctgtct | gccgactgct | ctgagctcgg | gctgtccgcc | gttccggggg | acccggaccc | 120 |
| cctgacggct | tacctggacc | tcagcatgaa | caacctcaca | gagcttcagc | ctggcctctt | 180 |
| ccaccacctg | cgtttcttgg | aggagctgcg | tctctctggg | aaccatctct | cacacatccc | 240 |
| aggacaagca | ttctctggtc | tctacagcct | gaaaatcctg | atgctgcaga | acaatcagct | 300 |
| gggaggaatc | cccgcagagg | cgctgtggga | gctgccgagc | ctgcagtcgc | tgcgcctaga | 360 |
| tgccaacctc | atctccctgg | tcccggagag | gagctttgag | gggctgtcct | ccctccgcca | 420 |
| cctctgggctg | gacgacaatg | cactcacgga | gatccctgtc | agggccctca | acaacctccc | 480 |
| tgccctgcag | gccatgaccc | tggccctcaa | ccgcatcagc | cacatccccg | actacgcgtt | 540 |
| ccagaatctc | accagccttg | tgggtgctgca | tttgcataac | aaccgcatcc | agcatctggg | 600 |
| gacccacagc | ttcgaggggc | tgcacaatct | ggagacacta | gacctgaatt | ataacaagct | 660 |
| gcaggagtcc | cctgtggcca | tccggaccct | gggcagactg | caggaactgg | ggttccataa | 720 |
| caacaacatc | aaggccatcc | cagaaaaggc | cttcatgggg | aacctctgc | tacagacgat | 780 |
| acacttttat | gataacccaa | tccagtttgt | gggaagatcg | gcattccagt | acctgcctaa | 840 |
| actccacaca | ctatctctga | atggtgccat | ggacatccag | gagtttccag | atctcaaagg | 900 |
| caccaccagc | ctggagatcc | tgaccctgac | ccgcgcaggc | atccggctgc | tcccatcggy | 960 |
| gatgtgccaa | cagctgcccc | ggctccgagt | cctggaactg | tctcacaatc | aaattgagga | 1020 |
| gctgcccagc | ctgcacaggt | gtcagaaatt | ggaggaaatc | ggcctccaac | acaaccgcat | 1080 |
| ctgggaaatt | ggagctgaca | ccttcagcca | gctgagctcc | ctgcaagccc | tggatcttag | 1140 |
| ctggaacgcc | atccggtcca | tccaccccga | ggccttctcc | accctgcact | ccctgggtcaa | 1200 |
| gctggacctg | acagacaacc | agctgaccac | actgcccctg | gctggacttg | ggggcttgat | 1260 |
| gcatctgaag | ctcaaaggga | accttgctct | ctcccaggcc | ttctccaagg | acagtttccc | 1320 |
| aaaactgagg | atcctggagg | tgccttatgc | ctaccagtgc | tgtccctatg | ggatgtgtgc | 1380 |
| cagcttcttc | aaggccctcg | ggcagtgggg | ggctgaagac | cttcaccttg | atgatgagga | 1440 |
| gtcttcaaaa | aggcccttgg | gcctcccttg | cagacaagca | gagaaccact | atgaccagga | 1500 |
| cctggatgag | ctccagctgg | agatggagga | ctcaaagcca | caccccagtg | tccagtgtag | 1560 |
| ccctactcca | ggcccccttc | agccctgtga | gtacctcttt | gaaagctggg | gcatccgcct | 1620 |
| ggccgtgtgg | gccatcgtgt | tgtctctcgt | gctctgcaat | ggactgggtg | tgtgaccgt | 1680 |
| gttcgctggc | gggcctgccc | ccctgcccc | ggtcaagttt | gtggtaggtg | cgattgcagg | 1740 |
| cgccaacacc | ttgactggca | tttctgttgg | ccttctagcc | tcagtcgatg | ccctgacctt | 1800 |
| tggtcagttc | tctgagtacg | gagcccgtcg | ggagacgggg | ctaggctgcc | gggccactgg | 1860 |
| cttcctggca | gtacttgggt | cggaggcatc | ggtgctgctg | ctcactctgg | ccgcagtgca | 1920 |

```

gtgcagcgtc tccgtctcct gtgtccgggc ctatgggaag tccccctccc tgggcagcgt 1980
tcgagcaggg gtcctaggct gcctggcact ggcagggctg gccgccgcac tgccccctggc 2040
ctcagtggga gaatacgggg cctccccact ctgcctgccc tacgcgccac ctgaggggtca 2100
gccagcagcc ctgggcttca ccgtggccct ggtgatgatg aactccttct gtttcctgg 2160
cgtggccggt gcctacatca aactgtactg tgacctgccg cggggcgact ttgaggccgt 2220
gtgggactgc gccatggtga ggcacgtggc ctggctcatc ttgcagacg ggctcctcta 2280
ctgtcccgtg gccttctcct gcttcgcctc catgctgggc ctcttccttg tcacgcccga 2340
ggccgtcaag tctgtcctgc tgggtggtgt gcccctgcct gcctgcctca acccactgct 2400
gtacctgctc ttcaaccccc acttccggga tgaccttcgg cggcttcggc cccgcgcagg 2460
ggactcaggg cccctagcct atgctgcggc cggggagctg gagaagagct cctgtgattc 2520
taccagggc ctggtagcct tctctgatgt ggatctcatt ctggaagctt ctgaagctgg 2580
gcggccccct gggctggaga cctatggctt cccctcagtg accctcatct cctgtcagca 2640
gccagggggc cccaggctgg agggcagcca ttgtgtagag ccagagggga accacttttg 2700
gaacccccaa ccttccatgg atggagaact gctgctgagg gcagagggat ctacgccagc 2760
aggtggaggc ttgtcagggg gtggcgcttt cagccctctg gcttggcctt tgcttcacac 2820
gtgtaaatac ccttccccat tcttctcttc ccttctcttc ccttctctct cccccctcg 2880
gtgaatgatg gctgcttcta aaacaaatac aacaaaaact cagcagtgtg atctatagca 2940
ggatggccca gtacctggct ccactgatca cctctctcct gtgacctca ccaacgggtg 3000
ccctcttggc ctggctttcc cttggccttc ctcagcttca ccttgatact gggcctcttc 3060
cttgtcatgt ctgaagctgt ggaccagaga cctggacttt tgtctgctta agggaaatga 3120
gggaagtaaa gacagtgaag ggggtggagg ttgatcaggg cacagtggac agggagacct 3180
cacagagaaa ggcttgaag gtgatttccc gtgtgactca tggataggat acaaaatgtg 3240
ttccatgtac cattaatctt gacatatgcc atgcataaag acttctatt aaaataagct 3300
ttggaagaga ttacacatga tgtctttttc ttagagattc acagtgcag ttagtgtaat 3360
aaagagataa gtcctacagt a                                     3381

```

<210> 6

<211> 940

<212> PRT

<213> Homo sapiens

<400> 6

```

Met Leu Ser Ala Asp Cys Ser Glu Leu Gly Leu Ser Ala Val Pro Gly
 1             5             10             15

Asp Pro Asp Pro Leu Thr Ala Tyr Leu Asp Leu Ser Met Asn Asn Leu
      20             25             30

Thr Glu Leu Gln Pro Gly Leu Phe His His Leu Arg Phe Leu Glu Glu
      35             40             45

Leu Arg Leu Ser Gly Asn His Leu Ser His Ile Pro Gly Gln Ala Phe
      50             55             60

Ser Gly Leu Tyr Ser Leu Lys Ile Leu Met Leu Gln Asn Asn Gln Leu
      65             70             75             80

Gly Gly Ile Pro Ala Glu Ala Leu Trp Glu Leu Pro Ser Leu Gln Ser
      85             90             95

Leu Arg Leu Asp Ala Asn Leu Ile Ser Leu Val Pro Glu Arg Ser Phe
      100            105            110

Glu Gly Leu Ser Ser Leu Arg His Leu Trp Leu Asp Asp Asn Ala Leu
      115            120            125

```

Thr Glu Ile Pro Val Arg Ala Leu Asn Asn Leu Pro Ala Leu Gln Ala
 130 135 140

Met Thr Leu Ala Leu Asn Arg Ile Ser His Ile Pro Asp Tyr Ala Phe
 145 150 155 160

Gln Asn Leu Thr Ser Leu Val Val Leu His Leu His Asn Asn Arg Ile
 165 170 175

Gln His Leu Gly Thr His Ser Phe Glu Gly Leu His Asn Leu Glu Thr
 180 185 190

Leu Asp Leu Asn Tyr Asn Lys Leu Gln Glu Phe Pro Val Ala Ile Arg
 195 200 205

Thr Leu Gly Arg Leu Gln Glu Leu Gly Phe His Asn Asn Asn Ile Lys
 210 215 220

Ala Ile Pro Glu Lys Ala Phe Met Gly Asn Pro Leu Leu Gln Thr Ile
 225 230 235 240

His Phe Tyr Asp Asn Pro Ile Gln Phe Val Gly Arg Ser Ala Phe Gln
 245 250 255

Tyr Leu Pro Lys Leu His Thr Leu Ser Leu Asn Gly Ala Met Asp Ile
 260 265 270

Gln Glu Phe Pro Asp Leu Lys Gly Thr Thr Ser Leu Glu Ile Leu Thr
 275 280 285

Leu Thr Arg Ala Gly Ile Arg Leu Leu Pro Ser Gly Met Cys Gln Gln
 290 295 300

Leu Pro Arg Leu Arg Val Leu Glu Leu Ser His Asn Gln Ile Glu Glu
 305 310 315 320

Leu Pro Ser Leu His Arg Cys Gln Lys Leu Glu Glu Ile Gly Leu Gln
 325 330 335

His Asn Arg Ile Trp Glu Ile Gly Ala Asp Thr Phe Ser Gln Leu Ser
 340 345 350

Ser Leu Gln Ala Leu Asp Leu Ser Trp Asn Ala Ile Arg Ser Ile His
 355 360 365

Pro Glu Ala Phe Ser Thr Leu His Ser Leu Val Lys Leu Asp Leu Thr
 370 375 380

Asp Asn Gln Leu Thr Thr Leu Pro Leu Ala Gly Leu Gly Gly Leu Met
 385 390 395 400

His Leu Lys Leu Lys Gly Asn Leu Ala Leu Ser Gln Ala Phe Ser Lys
 405 410 415

Asp Ser Phe Pro Lys Leu Arg Ile Leu Glu Val Pro Tyr Ala Tyr Gln
 420 425 430

Cys Cys Pro Tyr Gly Met Cys Ala Ser Phe Phe Lys Ala Ser Gly Gln
 435 440 445
 Trp Glu Ala Glu Asp Leu His Leu Asp Asp Glu Glu Ser Ser Lys Arg
 450 455 460
 Pro Leu Gly Leu Leu Ala Arg Gln Ala Glu Asn His Tyr Asp Gln Asp
 465 470 475 480
 Leu Asp Glu Leu Gln Leu Glu Met Glu Asp Ser Lys Pro His Pro Ser
 485 490 495
 Val Gln Cys Ser Pro Thr Pro Gly Pro Phe Lys Pro Cys Glu Tyr Leu
 500 505 510
 Phe Glu Ser Trp Gly Ile Arg Leu Ala Val Trp Ala Ile Val Leu Leu
 515 520 525
 Ser Val Leu Cys Asn Gly Leu Val Leu Leu Thr Val Phe Ala Gly Gly
 530 535 540
 Pro Ala Pro Leu Pro Pro Val Lys Phe Val Val Gly Ala Ile Ala Gly
 545 550 555 560
 Ala Asn Thr Leu Thr Gly Ile Ser Cys Gly Leu Leu Ala Ser Val Asp
 565 570 575
 Ala Leu Thr Phe Gly Gln Phe Ser Glu Tyr Gly Ala Arg Trp Glu Thr
 580 585 590
 Gly Leu Gly Cys Arg Ala Thr Gly Phe Leu Ala Val Leu Gly Ser Glu
 595 600 605
 Ala Ser Val Leu Leu Leu Thr Leu Ala Ala Val Gln Cys Ser Val Ser
 610 615 620
 Val Ser Cys Val Arg Ala Tyr Gly Lys Ser Pro Ser Leu Gly Ser Val
 625 630 635 640
 Arg Ala Gly Val Leu Gly Cys Leu Ala Leu Ala Gly Leu Ala Ala Ala
 645 650 655
 Leu Pro Leu Ala Ser Val Gly Glu Tyr Gly Ala Ser Pro Leu Cys Leu
 660 665 670
 Pro Tyr Ala Pro Pro Glu Gly Gln Pro Ala Ala Leu Gly Phe Thr Val
 675 680 685
 Ala Leu Val Met Met Asn Ser Phe Cys Phe Leu Val Val Ala Gly Ala
 690 695 700
 Tyr Ile Lys Leu Tyr Cys Asp Leu Pro Arg Gly Asp Phe Glu Ala Val
 705 710 715 720
 Trp Asp Cys Ala Met Val Arg His Val Ala Trp Leu Ile Phe Ala Asp
 725 730 735

Gly Leu Leu Tyr Cys Pro Val Ala Phe Leu Ser Phe Ala Ser Met Leu
 740 745 750
 Gly Leu Phe Pro Val Thr Pro Glu Ala Val Lys Ser Val Leu Leu Val
 755 760 765
 Val Leu Pro Leu Pro Ala Cys Leu Asn Pro Leu Leu Tyr Leu Leu Phe
 770 775 780
 Asn Pro His Phe Arg Asp Asp Leu Arg Arg Leu Arg Pro Arg Ala Gly
 785 790 795 800
 Asp Ser Gly Pro Leu Ala Tyr Ala Ala Ala Gly Glu Leu Glu Lys Ser
 805 810 815
 Ser Cys Asp Ser Thr Gln Ala Leu Val Ala Phe Ser Asp Val Asp Leu
 820 825 830
 Ile Leu Glu Ala Ser Glu Ala Gly Arg Pro Pro Gly Leu Glu Thr Tyr
 835 840 845
 Gly Phe Pro Ser Val Thr Leu Ile Ser Cys Gln Gln Pro Gly Ala Pro
 850 855 860
 Arg Leu Glu Gly Ser His Cys Val Glu Pro Glu Gly Asn His Phe Gly
 865 870 875 880
 Asn Pro Gln Pro Ser Met Asp Gly Glu Leu Leu Leu Arg Ala Glu Gly
 885 890 895
 Ser Thr Pro Ala Gly Gly Gly Leu Ser Gly Gly Gly Ala Phe Ser Pro
 900 905 910
 Leu Ala Trp Pro Leu Leu His Thr Cys Lys Tyr Pro Ser Pro Phe Phe
 915 920 925
 Ser Ser Pro Leu Phe Pro Phe Leu Ser Pro Pro Arg
 930 935 940

<210> 7

<211> 2397

<212> DNA

<213> Homo sapiens

<400> 7

atgctaataa attgtgaagc aaaaggtatc aagatgggtat ctgaaataag tgtgccacca 60
 tcacgacctt tccaactaag cttattaaat aacggcttga cgatgcttca cacaaatgac 120
 ttttctgggc ttaccaatgc tatttcaata caccttggat ttaacaatat tgcagatatt 180
 gagatagggtg catttaattgg ccttggcctc ctgaaacaac ttcatatcaa tcacaattct 240
 ttagaaattc ttaaagagga tactttccat ggactggaaa acctggaatt cctgcaagca 300
 gataacaatt ttatcacagt gattgaacca agtgccttta gcaagctcaa cagactcaaa 360
 gtgttaattt taaatgacaa tgctattgag agtcttccctc caaacatctt ccgatttggt 420
 cctttaaccc atctagatct tcgtggaaat caattacaaa cattgcctta tgttggtttt 480
 ctggaacaca ttggccgaat attggatctt cagttggagg acaacaaatg ggcctgcaat 540
 tgtgacttat tgcagttaaa aacttggttg gagaacatgc ctccacagtc tataattggt 600
 gatgttgtct gcaacagccc tccatttttt aaaggaagta tactcagtag actaaagaag 660

```

gaatctatatt gccctactcc accagtgtat gaagaacatg aggatccttc aggatcatta 720
catctggcag caacatcttc aataaatgat agtcgcatgt caactaagac caggtccatt 780
ctaaaactac ccaccaaagc accaggtttg ataccttata ttacaaagcc atccactcaa 840
cttcaggagc cttactgccc tattccttgt aactgcaaag tcctatcccc atcaggactt 900
ctaatacatt gtcaggagcg caacattgaa agcttatcag atctgagacc tcctccgcaa 960
aatcctagaa agctcattct agcgggaaat attattcaca gtttaatgaa gtctgatcta 1020
gtggaatatt tcactttgga aatgcttcac ttgggaaaca atcgtattga agttcttgaa 1080
gaaggatcgt ttatgaacct aacgagatta caaaaactct atctaaatgg taaccacctg 1140
accaaattaa gttaaaggcat gttccttggt ctccataatc ttgaatactt atatcttgaa 1200
tacaatgcca ttaaggaaat actgccagga acctttaatc caatgcctaa acttaaagtc 1260
ctgtatttaa ataacaacct cctccaagtt ttaccaccac atattttttc aggggttcct 1320
ctaactaagg taaatcttaa aacaaaccag tttacccatc tacctgtaag taatattttg 1380
gatgatcttg atttgctaac ccagattgac cttgaggata acccctggga ctgctcctgt 1440
gacctgggtg gactgcagca atggatacaa aagttaagca agaacacagt gacagatgac 1500
atcctctgca cttcccccg gcactctgac aaaaaggaat tgaaagccct aaatagttaa 1560
attctctgtc caggttttagt aaataaccca tccatgccaa cacagactag ttaccttatg 1620
gtcaccactc ctgcaacaac aacaaatagc gctgatacta ttttacgac tcctacggac 1680
gctgtgccac tgtctgttct aatattggga cttctgatta tgttcatcac tattgttttc 1740
tgtgtgcag ggatagtggg tcttgttctt caccgcagga gaagatacaa aaagaaacaa 1800
gtagatgagc aaatgagaga caacagtcct gtgcatcttc agtacagcat gtatggccat 1860
aaaaccactc atcacactac tgaaagacct tctgcctcac tctatgaaca gcacatgggtg 1920
agccccatgg ttcattgtcta tagaagtcca tcctttgggtc caaagcatct ggaagaggaa 1980
gaagagagga atgagaaaga aggaagtgat gcaaaacatc tccaaagaag tcttttgtaa 2040
caggaaaatc attcaccact cacagggtca aatatgaaat acaaaaccac gaaccaatca 2100
acagaatatt tctccttcca agatgccagc tcattgtaca gaaacatttt agaaaaagaa 2160
agggaaacttc agcaactggg aatcacagaa tacctaagga aaaacattgc tcagctccag 2220
cctgatattg aggcacatta tcctggagcc cacgaagagc tgaagttaat ggaaacatta 2280
atgtactcac gtccaaggaa ggtatttagt gaacagacaa aaaatgagta ttttgaactt 2340
aaagctaatt tacatgctga acctgactat ttagaagtc tggagcagca aacatag 2397

```

<210> 8

<211> 798

<212> PRT

<213> Homo sapiens

<400> 8

```

Met Leu Ile Asn Cys Glu Ala Lys Gly Ile Lys Met Val Ser Glu Ile
  1                      5                      10                      15

```

```

Ser Val Pro Pro Ser Arg Pro Phe Gln Leu Ser Leu Leu Asn Asn Gly
                20                      25                      30

```

```

Leu Thr Met Leu His Thr Asn Asp Phe Ser Gly Leu Thr Asn Ala Ile
  35                      40                      45

```

```

Ser Ile His Leu Gly Phe Asn Asn Ile Ala Asp Ile Glu Ile Gly Ala
  50                      55                      60

```

```

Phe Asn Gly Leu Gly Leu Leu Lys Gln Leu His Ile Asn His Asn Ser
  65                      70                      75                      80

```

```

Leu Glu Ile Leu Lys Glu Asp Thr Phe His Gly Leu Glu Asn Leu Glu
                85                      90                      95

```

```

Phe Leu Gln Ala Asp Asn Asn Phe Ile Thr Val Ile Glu Pro Ser Ala
  100                      105                      110

```

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Ser | Lys | Leu | Asn | Arg | Leu | Lys | Val | Leu | Ile | Leu | Asn | Asp | Asn | Ala | 115 | 120 | 125 |
| Ile | Glu | Ser | Leu | Pro | Pro | Asn | Ile | Phe | Arg | Phe | Val | Pro | Leu | Thr | His | 130 | 135 | 140 |
| Leu | Asp | Leu | Arg | Gly | Asn | Gln | Leu | Gln | Thr | Leu | Pro | Tyr | Val | Gly | Phe | 145 | 150 | 155 |
| Leu | Glu | His | Ile | Gly | Arg | Ile | Leu | Asp | Leu | Gln | Leu | Glu | Asp | Asn | Lys | 165 | 170 | 175 |
| Trp | Ala | Cys | Asn | Cys | Asp | Leu | Leu | Gln | Leu | Lys | Thr | Trp | Leu | Glu | Asn | 180 | 185 | 190 |
| Met | Pro | Pro | Gln | Ser | Ile | Ile | Gly | Asp | Val | Val | Cys | Asn | Ser | Pro | Pro | 195 | 200 | 205 |
| Phe | Phe | Lys | Gly | Ser | Ile | Leu | Ser | Arg | Leu | Lys | Lys | Glu | Ser | Ile | Cys | 210 | 215 | 220 |
| Pro | Thr | Pro | Pro | Val | Tyr | Glu | Glu | His | Glu | Asp | Pro | Ser | Gly | Ser | Leu | 225 | 230 | 235 |
| His | Leu | Ala | Ala | Thr | Ser | Ser | Ile | Asn | Asp | Ser | Arg | Met | Ser | Thr | Lys | 245 | 250 | 255 |
| Thr | Thr | Ser | Ile | Leu | Lys | Leu | Pro | Thr | Lys | Ala | Pro | Gly | Leu | Ile | Pro | 260 | 265 | 270 |
| Tyr | Ile | Thr | Lys | Pro | Ser | Thr | Gln | Leu | Pro | Gly | Pro | Tyr | Cys | Pro | Ile | 275 | 280 | 285 |
| Pro | Cys | Asn | Cys | Lys | Val | Leu | Ser | Pro | Ser | Gly | Leu | Leu | Ile | His | Cys | 290 | 295 | 300 |
| Gln | Glu | Arg | Asn | Ile | Glu | Ser | Leu | Ser | Asp | Leu | Arg | Pro | Pro | Pro | Gln | 305 | 310 | 315 |
| Asn | Pro | Arg | Lys | Leu | Ile | Leu | Ala | Gly | Asn | Ile | Ile | His | Ser | Leu | Met | 325 | 330 | 335 |
| Lys | Ser | Asp | Leu | Val | Glu | Tyr | Phe | Thr | Leu | Glu | Met | Leu | His | Leu | Gly | 340 | 345 | 350 |
| Asn | Asn | Arg | Ile | Glu | Val | Leu | Glu | Glu | Gly | Ser | Phe | Met | Asn | Leu | Thr | 355 | 360 | 365 |
| Arg | Leu | Gln | Lys | Leu | Tyr | Leu | Asn | Gly | Asn | His | Leu | Thr | Lys | Leu | Ser | 370 | 375 | 380 |
| Lys | Gly | Met | Phe | Leu | Gly | Leu | His | Asn | Leu | Glu | Tyr | Leu | Tyr | Leu | Glu | 385 | 390 | 395 |
| Tyr | Asn | Ala | Ile | Lys | Glu | Ile | Leu | Pro | Gly | Thr | Phe | Asn | Pro | Met | Pro | 405 | 410 | 415 |

Lys Leu Lys Val Leu Tyr Leu Asn Asn Asn Leu Leu Gln Val Leu Pro
 420 425 430
 Pro His Ile Phe Ser Gly Val Pro Leu Thr Lys Val Asn Leu Lys Thr
 435 440 445
 Asn Gln Phe Thr His Leu Pro Val Ser Asn Ile Leu Asp Asp Leu Asp
 450 455 460
 Leu Leu Thr Gln Ile Asp Leu Glu Asp Asn Pro Trp Asp Cys Ser Cys
 465 470 475 480
 Asp Leu Val Gly Leu Gln Gln Trp Ile Gln Lys Leu Ser Lys Asn Thr
 485 490 495
 Val Thr Asp Asp Ile Leu Cys Thr Ser Pro Gly His Leu Asp Lys Lys
 500 505 510
 Glu Leu Lys Ala Leu Asn Ser Glu Ile Leu Cys Pro Gly Leu Val Asn
 515 520 525
 Asn Pro Ser Met Pro Thr Gln Thr Ser Tyr Leu Met Val Thr Thr Pro
 530 535 540
 Ala Thr Thr Thr Asn Thr Ala Asp Thr Ile Leu Arg Ser Leu Thr Asp
 545 550 555 560
 Ala Val Pro Leu Ser Val Leu Ile Leu Gly Leu Leu Ile Met Phe Ile
 565 570 575
 Thr Ile Val Phe Cys Ala Ala Gly Ile Val Val Leu Val Leu His Arg
 580 585 590
 Arg Arg Arg Tyr Lys Lys Lys Gln Val Asp Glu Gln Met Arg Asp Asn
 595 600 605
 Ser Pro Val His Leu Gln Tyr Ser Met Tyr Gly His Lys Thr Thr His
 610 615 620
 His Thr Thr Glu Arg Pro Ser Ala Ser Leu Tyr Glu Gln His Met Val
 625 630 635 640
 Ser Pro Met Val His Val Tyr Arg Ser Pro Ser Phe Gly Pro Lys His
 645 650 655
 Leu Glu Glu Glu Glu Glu Arg Asn Glu Lys Glu Gly Ser Asp Ala Lys
 660 665 670
 His Leu Gln Arg Ser Leu Leu Glu Gln Glu Asn His Ser Pro Leu Thr
 675 680 685
 Gly Ser Asn Met Lys Tyr Lys Thr Thr Asn Gln Ser Thr Glu Phe Leu
 690 695 700
 Ser Phe Gln Asp Ala Ser Ser Leu Tyr Arg Asn Ile Leu Glu Lys Glu
 705 710 715 720

Arg Glu Leu Gln Gln Leu Gly Ile Thr Glu Tyr Leu Arg Lys Asn Ile
725 730 735

Ala Gln Leu Gln Pro Asp Met Glu Ala His Tyr Pro Gly Ala His Glu
740 745 750

Glu Leu Lys Leu Met Glu Thr Leu Met Tyr Ser Arg Pro Arg Lys Val
755 760 765

Leu Val Glu Gln Thr Lys Asn Glu Tyr Phe Glu Leu Lys Ala Asn Leu
770 775 780

His Ala Glu Pro Asp Tyr Leu Glu Val Leu Glu Gln Gln Thr
785 790 795

<210> 9
<211> 3825
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (2)..(7)
<223> Wherein n is a or t or c or g.

<220>
<221> misc_feature
<222> (10)..(12)
<223> Wherein n is a or t or c or g.

<220>
<221> misc_feature
<222> (17)
<223> Wherein n is a or t or c or g.

<220>
<221> misc_feature
<222> (19)
<223> Wherein n is a or t or c or g.

<220>
<221> misc_feature
<222> (22)
<223> Wherein n is a or t or c or g.

<220>
<221> misc_feature
<222> (25)
<223> Wherein n is a or t or c or g.

<220>
<221> misc_feature
<222> (28)..(30)
<223> Wherein n is a or t or c or g.

<400> 9

| | | | | | | |
|-------------|-------------|-------------|------------|-------------|-------------|------|
| gnnnnnnnann | nnattcntnc | antgnacnnn | accaagttct | acctcatggt | tggaggatct | 60 |
| tgctagctat | ggccctcgta | ctcggctccc | tggtgctgct | ggggctgtgc | gggaactcct | 120 |
| tttcaggagg | gcagccttca | tccacagatg | ctcctaaggc | ttggaattat | gaattgcctg | 180 |
| caacaaatta | tgagacccaa | gactcccata | aagctggacc | cattggcatt | ctctttgaac | 240 |
| tagtgcatat | ctttctctat | gtggtacagc | cgcgtgattt | cccagaagat | actttgagaa | 300 |
| aattcttaca | gaaggcatat | gaatccaaaa | ttgattatga | caagccagaa | actgtaatct | 360 |
| taggtctaaa | gattgtctac | tatgaagcag | ggattattct | atgctgtgtc | ctggggctgc | 420 |
| tgtttattat | tctgatgcct | ctgggtgggt | atctcttttg | tatgtgtcgt | tgctgtaaca | 480 |
| aatgtggtg | agaaatgcac | cagcgacaga | aggaaaatgg | gcccttcctg | aggaaatgct | 540 |
| ttgcaatctc | cctgttggtg | atctgtataa | taataagcat | tggcatcttc | tatggttttg | 600 |
| tggcaaatca | ccaggtaaga | acccggatca | aaaggagtcg | gaaactggca | gatagcaatt | 660 |
| tcaaggactt | gcgaactctc | ttgaatgaaa | ctccagagca | aatcaaata | atattggccc | 720 |
| agtacaacac | taccaaggac | aaggcgttca | cagatctgaa | cagtatcaat | tcagtgtctag | 780 |
| gaggcggaat | ctttgaccga | ctgagaccca | acatcatccc | tgttcttgat | gagattaagt | 840 |
| ccatggcaac | agcgttcaag | gagaccaaag | aggcgttggg | gaacatgaac | agcaccttga | 900 |
| agagcttgca | ccaacaaagt | acacagctta | gcagcagtct | gaccagcgtg | aaaactagcc | 960 |
| tgcggtcatc | tctcaatgac | cctctgtgct | tggtgcatcc | atcaagtga | acctgcaaca | 1020 |
| gcacagatt | gtctctaagc | cagctgaata | gcaaccctga | actgaggcag | cttccacccg | 1080 |
| tggatgcaga | acttgacaac | gttaataacg | ttcttaggac | agatttggat | ggcctgggtc | 1140 |
| aacagggcta | tcaatccctt | aatgatatac | ctgacagagt | acaacgcca | accacgactg | 1200 |
| tcgtagcagg | tatcaaaagg | gtcttgaatt | ccattgggtc | agatatcgac | aatgtaactc | 1260 |
| agcgtcttcc | tattcaggat | atactctcag | cattctctgt | ttatgttaat | aacactgaaa | 1320 |
| gttacatcca | cagaaattta | cctacattgg | aagagtatga | ttcatactgg | tggctgggtg | 1380 |
| gcctggatcat | ctgctctctg | ctgaccctca | tcgtgatttt | ttactacctg | ggcttactgt | 1440 |
| gtggcgtgtg | cggctatgac | aggcatgcc | ccccgaccac | ccgaggctgt | gtctccaaca | 1500 |
| ccggaggcgt | cttctctcatg | gttggagtgt | gattaagttt | cctcttttgc | tggatattga | 1560 |
| tgatcattgt | ggttcttacc | tttgtctttg | gtgcaaatgt | ggaaaaactg | atctgtgaac | 1620 |
| cttacacgag | caaggaatta | ttccgggttt | tggatacacc | ctacttacta | aatgaagact | 1680 |
| gggaatacta | tctctctggg | aagctattta | ataaatcaaa | aatgaagctc | acttttgaac | 1740 |
| aagtttacag | tgactgcaaa | aaaaatagag | gcacttacgg | cactcttcac | ctgcagaaca | 1800 |
| gcttcaatat | cagtgaacat | ctcaacatta | atgagcatat | tggaaagcata | agcagtgaat | 1860 |
| tggaaagtct | gaaggtaaat | cttaatatct | ttctgttggg | tgacagcagga | agaaaaaacc | 1920 |
| ttcaggattt | tgctgcttgt | ggaatagaca | gaatgaatta | tgacagctac | ttggctcaga | 1980 |
| ctggtaaatc | ccccgcagga | gtgaatcttt | tatcatttgc | atatgatcta | gaagcaaaaag | 2040 |
| caaacagttt | gccccagga | aatttgagga | actccctgaa | aagagatgca | caaactatta | 2100 |
| aaacaattca | ccagcaacga | gtccttccca | tagaacaatc | actgagcact | ctataccaaa | 2160 |
| gcgtcaagat | acttcaacgc | acagggaatg | gattgttggg | gagagtaact | aggattctag | 2220 |
| cttctctgga | ttttgctcag | aacttcatca | caaacaatac | ttctctgtgt | attattgagg | 2280 |
| aaactaagaa | gtatgggaga | acaataatag | gatattttga | acattatctg | cagtggatcg | 2340 |
| agttctctat | cagtgaagaa | gtggcatcgt | gcaaacctgt | ggccaccgct | ctagatactg | 2400 |
| ctgttgatgt | ctttctgtgt | agctacatta | tcgacccctt | gaatttggtt | tgggttggca | 2460 |
| taggaaaagc | tactgtattt | ttacttccgg | ctctaatttt | tgcggtaaaa | ctggctaagt | 2520 |
| actatcgtcg | aatggattcg | gaggacgtgt | acgatgatgt | tgaaactata | cccatgaaaa | 2580 |
| atatggaaaa | tggttaataat | ggttatcata | aagatcatgt | atatggtatt | cacaatcctg | 2640 |
| ttatgacaag | cccatcacia | cattgatagc | tgatgttgaa | actgcttgag | catcaggata | 2700 |
| ctcaaagtgg | aaaggatcac | agatttttgg | tagtttctgg | gtctacaagg | actttccaaa | 2760 |
| tccaggagca | acgcagtggt | caacgtagtg | actcaggcgg | gcaccaaggc | aacggcacca | 2820 |
| ttggtctctg | ggtagtgtct | taagaatgaa | cacaatcacg | ttatagtcca | tgggtccatca | 2880 |
| ctattcaagg | atgactccct | cccttccctgt | ctatttttgt | tttttacttt | tttactactga | 2940 |
| gtttctatct | agacactaca | acatatgggg | tgtttgttcc | cattggatgc | atttctatca | 3000 |
| aaactctatc | aaatgtgatg | gctagattct | aacatattgc | catgtgtgga | gtgtgctgaa | 3060 |
| cacacaccag | tttacaggaa | agatgcattt | tgtgtacagt | aaacggtgta | tatacctttt | 3120 |
| gttaccacag | agtttttttaa | acaaatgagt | attataggac | tttcttctaa | atgagctaaa | 3180 |
| taagtcacca | ttgacttctt | ggtgctgttg | aaaataatcc | atcttctacta | aaagtgtgtg | 3240 |
| aaacctacag | catattcttc | acgcagagat | tttcatctat | tatactttat | caaagattgg | 3300 |
| ccatgttcca | cttggaaatg | gcatgcaaaa | gccatcatag | agaaacctgc | gtaactccat | 3360 |

ctgacaaatt caaaagagag agagagatct tgagagagaa atgctgttcg ttcaaaagtg 3420
 gagttgtttt aacagatgcc aattacgggtg tacagtttaa cagagttttc tgttgcatta 3480
 ggataaacat taattggagt gcagctaaca tgagtatcat cagactagta tcaagtgttc 3540
 taaaatgaaa tatgagaaga tcctgtcaca attcttagat ctgggtgtcca gcatggatga 3600
 aacctttgag tttggtcctt aaatttgcac gaaagcacaa ggtaaattt catttgcttc 3660
 aggagtttca tgttggatct gtcattatca aaagtgatca gcaatgaaga actggtcgga 3720
 caaaatttaa cgttgatgta atggaattcc agatgtaggc attcccccca ggtcttttca 3780
 tgtgcagatt gcagttctga ttcatttgaa taaaaaggaa cttgg 3825

<210> 10
 <211> 865
 <212> PRT
 <213> Homo sapiens

<400> 10

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Leu | Val | Leu | Gly | Ser | Leu | Leu | Leu | Gly | Leu | Cys | Gly | Asn | |
| 1 | | | | 5 | | | | 10 | | | | | 15 | | |
| Ser | Phe | Ser | Gly | Gly | Gln | Pro | Ser | Ser | Thr | Asp | Ala | Pro | Lys | Ala | Trp |
| | | | 20 | | | | 25 | | | | | | 30 | | |
| Asn | Tyr | Glu | Leu | Pro | Ala | Thr | Asn | Tyr | Glu | Thr | Gln | Asp | Ser | His | Lys |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ala | Gly | Pro | Ile | Gly | Ile | Leu | Phe | Glu | Leu | Val | His | Ile | Phe | Leu | Tyr |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Val | Val | Gln | Pro | Arg | Asp | Phe | Pro | Glu | Asp | Thr | Leu | Arg | Lys | Phe | Leu |
| | 65 | | | | 70 | | | | | 75 | | | | | 80 |
| Gln | Lys | Ala | Tyr | Glu | Ser | Lys | Ile | Asp | Tyr | Asp | Lys | Pro | Glu | Thr | Val |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Ile | Leu | Gly | Leu | Lys | Ile | Val | Tyr | Tyr | Glu | Ala | Gly | Ile | Ile | Leu | Cys |
| | | 100 | | | | | | 105 | | | | | 110 | | |
| Cys | Val | Leu | Gly | Leu | Leu | Phe | Ile | Ile | Leu | Met | Pro | Leu | Val | Gly | Tyr |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Phe | Phe | Cys | Met | Cys | Arg | Cys | Cys | Asn | Lys | Cys | Gly | Gly | Glu | Met | His |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Gln | Arg | Gln | Lys | Glu | Asn | Gly | Pro | Phe | Leu | Arg | Lys | Cys | Phe | Ala | Ile |
| | 145 | | | | 150 | | | | | 155 | | | | | 160 |
| Ser | Leu | Leu | Val | Ile | Cys | Ile | Ile | Ile | Ser | Ile | Gly | Ile | Phe | Tyr | Gly |
| | | | 165 | | | | | | 170 | | | | | 175 | |
| Phe | Val | Ala | Asn | His | Gln | Val | Arg | Thr | Arg | Ile | Lys | Arg | Ser | Arg | Lys |
| | | 180 | | | | | | 185 | | | | | 190 | | |
| Leu | Ala | Asp | Ser | Asn | Phe | Lys | Asp | Leu | Arg | Thr | Leu | Leu | Asn | Glu | Thr |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Pro | Glu | Gln | Ile | Lys | Tyr | Ile | Leu | Ala | Gln | Tyr | Asn | Thr | Thr | Lys | Asp |
| | 210 | | | | | 215 | | | | | 220 | | | | |

Lys Ala Phe Thr Asp Leu Asn Ser Ile Asn Ser Val Leu Gly Gly Gly
 225 230 235 240
 Ile Leu Asp Arg Leu Arg Pro Asn Ile Ile Pro Val Leu Asp Glu Ile
 245 250 255
 Lys Ser Met Ala Thr Ala Ile Lys Glu Thr Lys Glu Ala Leu Glu Asn
 260 265 270
 Met Asn Ser Thr Leu Lys Ser Leu His Gln Gln Ser Thr Gln Leu Ser
 275 280 285
 Ser Ser Leu Thr Ser Val Lys Thr Ser Leu Arg Ser Ser Leu Asn Asp
 290 295 300
 Pro Leu Cys Leu Val His Pro Ser Ser Glu Thr Cys Asn Ser Ile Arg
 305 310 315 320
 Leu Ser Leu Ser Gln Leu Asn Ser Asn Pro Glu Leu Arg Gln Leu Pro
 325 330 335
 Pro Val Asp Ala Glu Leu Asp Asn Val Asn Asn Val Leu Arg Thr Asp
 340 345 350
 Leu Asp Gly Leu Val Gln Gln Gly Tyr Gln Ser Leu Asn Asp Ile Pro
 355 360 365
 Asp Arg Val Gln Arg Gln Thr Thr Thr Val Val Ala Gly Ile Lys Arg
 370 375 380
 Val Leu Asn Ser Ile Gly Ser Asp Ile Asp Asn Val Thr Gln Arg Leu
 385 390 395 400
 Pro Ile Gln Asp Ile Leu Ser Ala Phe Ser Val Tyr Val Asn Asn Thr
 405 410 415
 Glu Ser Tyr Ile His Arg Asn Leu Pro Thr Leu Glu Glu Tyr Asp Ser
 420 425 430
 Tyr Trp Trp Leu Gly Gly Leu Val Ile Cys Ser Leu Leu Thr Leu Ile
 435 440 445
 Val Ile Phe Tyr Tyr Leu Gly Leu Leu Cys Gly Val Cys Gly Tyr Asp
 450 455 460
 Arg His Ala Thr Pro Thr Thr Arg Gly Cys Val Ser Asn Thr Gly Gly
 465 470 475 480
 Val Phe Leu Met Val Gly Val Gly Leu Ser Phe Leu Phe Cys Trp Ile
 485 490 495
 Leu Met Ile Ile Val Val Leu Thr Phe Val Phe Gly Ala Asn Val Glu
 500 505 510
 Lys Leu Ile Cys Glu Pro Tyr Thr Ser Lys Glu Leu Phe Arg Val Leu
 515 520 525

Asp Thr Pro Tyr Leu Leu Asn Glu Asp Trp Glu Tyr Tyr Leu Ser Gly
 530 535 540

Lys Leu Phe Asn Lys Ser Lys Met Lys Leu Thr Phe Glu Gln Val Tyr
 545 550 555 560

Ser Asp Cys Lys Lys Asn Arg Gly Thr Tyr Gly Thr Leu His Leu Gln
 565 570 575

Asn Ser Phe Asn Ile Ser Glu His Leu Asn Ile Asn Glu His Thr Gly
 580 585 590

Ser Ile Ser Ser Glu Leu Glu Ser Leu Lys Val Asn Leu Asn Ile Phe
 595 600 605

Leu Leu Gly Ala Ala Gly Arg Lys Asn Leu Gln Asp Phe Ala Ala Cys
 610 615 620

Gly Ile Asp Arg Met Asn Tyr Asp Ser Tyr Leu Ala Gln Thr Gly Lys
 625 630 635 640

Ser Pro Ala Gly Val Asn Leu Leu Ser Phe Ala Tyr Asp Leu Glu Ala
 645 650 655

Lys Ala Asn Ser Leu Pro Pro Gly Asn Leu Arg Asn Ser Leu Lys Arg
 660 665 670

Asp Ala Gln Thr Ile Lys Thr Ile His Gln Gln Arg Val Leu Pro Ile
 675 680 685

Glu Gln Ser Leu Ser Thr Leu Tyr Gln Ser Val Lys Ile Leu Gln Arg
 690 695 700

Thr Gly Asn Gly Leu Leu Glu Arg Val Thr Arg Ile Leu Ala Ser Leu
 705 710 715 720

Asp Phe Ala Gln Asn Phe Ile Thr Asn Asn Thr Ser Ser Val Ile Ile
 725 730 735

Glu Glu Thr Lys Lys Tyr Gly Arg Thr Ile Ile Gly Tyr Phe Glu His
 740 745 750

Tyr Leu Gln Trp Ile Glu Phe Ser Ile Ser Glu Lys Val Ala Ser Cys
 755 760 765

Lys Pro Val Ala Thr Ala Leu Asp Thr Ala Val Asp Val Phe Leu Cys
 770 775 780

Ser Tyr Ile Ile Asp Pro Leu Asn Leu Phe Trp Phe Gly Ile Gly Lys
 785 790 795 800

Ala Thr Val Phe Leu Leu Pro Ala Leu Ile Phe Ala Val Lys Leu Ala
 805 810 815

Lys Tyr Tyr Arg Arg Met Asp Ser Glu Asp Val Tyr Asp Asp Val Glu
 820 825 830

Thr Ile Pro Met Lys Asn Met Glu Asn Gly Asn Asn Gly Tyr His Lys
835 840 845

Asp His Val Tyr Gly Ile His Asn Pro Val Met Thr Ser Pro Ser Gln
850 855 860

His
865

<210> 11
<211> 1807
<212> DNA
<213> Homo sapiens

<400> 11
gcacgaggga agaggggtgat ccgacccggg gaaggtcgct gggcagggcg agttgggaaa 60
gcggcagccc ccgccgcccc cgcagcccct tctcctcctt tctcccacgt cctatctgcc 120
tctcgctgga ggccaggccg tgcagcatcg aagacaggag gaactggagc ctcataggcc 180
ggcccggggc gccggcctcg ggcttaaata ggagctccgg gctctggctg ggacccgacc 240
gctgccggcc gcgctcccg cgtcctgcc gggatgatgga aaaccccagc ccggccgccc 300
ccctgggcaa ggccctctgc gctcctctcc tggccactct cggcgccgcc ggccagcctc 360
ttgggggaga gtccatctgt tccgccagag ccccgggcaa atacagcatc accttcacgg 420
gcaagtggag ccagacggcc ttccccaagc agtaccacct gttccgcccc cctgcgcagt 480
ggtcttcgct gctggggggc gcgcatagct ccgactacag catgtggagg aagaaccagt 540
acgtcagtaa cgggctgcgc gactttgcgg agcgcggcga ggctggggcg ctgatgaagg 600
agatcgaggc ggccgggggag gcgctgcaga gcgtgcacgc ggtgttttcg gcgcccgcgc 660
tccccagcgg caccgggcag acgtcggcgg agctggagggt gcagcgcagg cactcgctgg 720
tctcgtttgt ggtgcgcata gtgccagacc ccgactgggt cgtgggcgtg gacagcctgg 780
acctgtgcga cggggaccgt tggcgggaaac aggcggcgct ggacctgtac ccctacgacg 840
ccgggacgga cagcggcttc accttctcct cccccaactt cgccaccatc ccgcaggaca 900
cggtgaccga gataacgtcc tctctccca gccaccggc caactccttc tactaccgc 960
ggctgaaggc cctgcctccc atcgccaggg tgacactggt gcggctgcga cagagcccca 1020
gggccttcat ccctcccgcc ccagtcctgc ccagcaggga caatgagatt gtagacagcg 1080
cctcagttcc agaaacgccc ctggactgcg aggtctccct gtggtcgtcc tggggactgt 1140
gcggaggcca ctgtgggagg ctccgggacca agagcaggac tcgctacgtc cgggtccagc 1200
ccgccaacaa cgggagcccc tgccccgagc tcgaagaaga ggctgagtgc gtccctgata 1260
actgcgtcta agaccagagc cccgcagccc ctggggcccc cggagccatg ggggtgcggg 1320
ggctcctgtg caggctcatg ctgcaggcgg ccgaggcaca ggggggttcg cgctgctcct 1380
gaccgcgggtg aggcgcgcgc gaccatctct gcaactgaagg gccctctggt ggccggcacg 1440
ggcattggga aacagcctcc tcctttccca accttgcttc ttagggggccc ccgtgtcccg 1500
tctgctctca gcctcctcct cctgcaggat aaagtcaccc ccaaggctcc agctactcta 1560
aattatggtc tccttataag ttattgctgc tccaggagat tgccttcat cgtccagggg 1620
cctggctccc acgtggttgc agatacctca gacctggtgc tctaggctgt gctgagccca 1680
ctctcccag ggccatcca agcggggggc acttgagaag tgaataaatg gggcggtttc 1740
ggaagcgtca gtgtttccat gttatggatc tctctgcgtt tgaataaaga ctatctctgt 1800
tgctcac 1807

<210> 12
<211> 331
<212> PRT
<213> Homo sapiens

<400> 12
Met Glu Asn Pro Ser Pro Ala Ala Ala Leu Gly Lys Ala Leu Cys Ala

| | | | |
|---|-----|-----|-----|
| 1 | 5 | 10 | 15 |
| Leu Leu Leu Ala Thr Leu Gly Ala Ala Gly Gln Pro Leu Gly Gly Glu | 20 | 25 | 30 |
| Ser Ile Cys Ser Ala Arg Ala Pro Ala Lys Tyr Ser Ile Thr Phe Thr | 35 | 40 | 45 |
| Gly Lys Trp Ser Gln Thr Ala Phe Pro Lys Gln Tyr Pro Leu Phe Arg | 50 | 55 | 60 |
| Pro Pro Ala Gln Trp Ser Ser Leu Leu Gly Ala Ala His Ser Ser Asp | 65 | 70 | 75 |
| Tyr Ser Met Trp Arg Lys Asn Gln Tyr Val Ser Asn Gly Leu Arg Asp | 85 | 90 | 95 |
| Phe Ala Glu Arg Gly Glu Ala Trp Ala Leu Met Lys Glu Ile Glu Ala | 100 | 105 | 110 |
| Ala Gly Glu Ala Leu Gln Ser Val His Ala Val Phe Ser Ala Pro Ala | 115 | 120 | 125 |
| Val Pro Ser Gly Thr Gly Gln Thr Ser Ala Glu Leu Glu Val Gln Arg | 130 | 135 | 140 |
| Arg His Ser Leu Val Ser Phe Val Val Arg Ile Val Pro Ser Pro Asp | 145 | 150 | 155 |
| Trp Phe Val Gly Val Asp Ser Leu Asp Leu Cys Asp Gly Asp Arg Trp | 165 | 170 | 175 |
| Arg Glu Gln Ala Ala Leu Asp Leu Tyr Pro Tyr Asp Ala Gly Thr Asp | 180 | 185 | 190 |
| Ser Gly Phe Thr Phe Ser Ser Pro Asn Phe Ala Thr Ile Pro Gln Asp | 195 | 200 | 205 |
| Thr Val Thr Glu Ile Thr Ser Ser Ser Pro Ser His Pro Ala Asn Ser | 210 | 215 | 220 |
| Phe Tyr Tyr Pro Arg Leu Lys Ala Leu Pro Pro Ile Ala Arg Val Thr | 225 | 230 | 235 |
| Leu Val Arg Leu Arg Gln Ser Pro Arg Ala Phe Ile Pro Pro Ala Pro | 245 | 250 | 255 |
| Val Leu Pro Ser Arg Asp Asn Glu Ile Val Asp Ser Ala Ser Val Pro | 260 | 265 | 270 |
| Glu Thr Pro Leu Asp Cys Glu Val Ser Leu Trp Ser Ser Trp Gly Leu | 275 | 280 | 285 |
| Cys Gly Gly His Cys Gly Arg Leu Gly Thr Lys Ser Arg Thr Arg Tyr | 290 | 295 | 300 |
| Val Arg Val Gln Pro Ala Asn Asn Gly Ser Pro Cys Pro Glu Leu Glu | | | |

Val Asn Gly Gly Trp Ser Thr Trp Thr Glu Trp Ser Val Cys Ser Ala
 245 250 255
 Ser Cys Gly Arg Gly Trp Gln Lys Arg Ser Arg Ser Cys Thr Asn Pro
 260 265 270
 Ala Pro Leu Asn Gly Gly Ala Phe Cys Glu Gly Gln Asn Val Gln Lys
 275 280 285
 Thr Ala Cys Ala Thr Leu Cys Pro Val Asp Gly Ser Trp Ser Ser Trp
 290 295 300
 Ser Lys Trp Ser Ala Cys Gly Leu Asp Cys Thr His Trp Arg Ser Arg
 305 310 315 320
 Glu Cys Ser Asp Pro Ala Pro Arg Asn Gly Gly Glu Glu Cys Arg Gly
 325 330 335
 Ala Asp Leu Asp Thr Arg Asn Cys Thr Ser Asp Leu Cys Leu His Thr
 340 345 350
 Ala Ser Cys Pro Glu Asp Val Ala Leu Tyr Ile Gly Leu Val Ala Val
 355 360 365
 Ala Val Cys Leu Phe Leu Leu Leu Leu Ala Leu Gly Leu Ile Tyr Cys
 370 375 380
 Arg Lys Lys Glu Gly Leu Asp Ser Asp Val Ala Asp Ser Ser Ile Leu
 385 390 395 400
 Thr Ser Gly Phe Gln Pro Val Ser Ile Lys Pro Ser Lys Ala Asp Asn
 405 410 415
 Pro His Leu Leu Thr Ile Gln Pro Asp Leu Ser Thr Thr Thr Thr Thr
 420 425 430
 Tyr Gln Gly Ser Leu Cys Ser Arg Gln Asp Gly Pro Ser Pro Lys Phe
 435 440 445
 Gln Leu Ser Asn Gly His Leu Leu Ser Pro Leu Gly Ser Gly Arg His
 450 455 460
 Thr Leu His His Ser Ser Pro Thr Ser Glu Ala Glu Asp Phe Val Ser
 465 470 475 480
 Arg Leu Ser Thr Gln Asn Tyr Phe Arg Ser Leu Pro Arg Gly Thr Ser
 485 490 495
 Asn Met Ala Tyr Gly Thr Phe Asn Phe Leu Gly Gly Arg Leu Met Ile
 500 505 510
 Pro Asn Thr Gly Ile Ser Leu Leu Ile Pro Pro Asp Ala Ile Pro Arg
 515 520 525
 Gly Lys Ile Tyr Glu Ile Tyr Leu Thr Leu His Lys Pro Glu Asp Val
 530 535 540

Arg Leu Pro Leu Ala Gly Cys Gln Thr Leu Leu Ser Pro Val Val Ser
 545 550 555 560

Cys Gly Pro Pro Gly Val Leu Leu Thr Arg Pro Val Ile Leu Ala Met
 565 570 575

Asp His Cys Gly Glu Pro Ser Pro Asp Ser Trp Ser Leu Arg Leu Lys
 580 585 590

Lys Gln Ser Cys Glu Gly Ser Trp Glu Asp Val Leu His Leu Gly Glu
 595 600 605

Glu Ser Pro Ser His Leu Tyr Tyr Cys Gln Leu Glu Ala Gly Ala Cys
 610 615 620

Tyr Val Phe Thr Glu Gln Leu Gly Arg Phe Ala Leu Val Gly Glu Ala
 625 630 635 640

Leu Ser Val Ala Ala Thr Lys Arg Leu Arg Leu Leu Leu Phe Ala Pro
 645 650 655

Val Ala Cys Thr Ser Leu Glu Tyr Asn Ile Arg Val Tyr Cys Leu His
 660 665 670

Asp Thr His Asp Ala Leu Lys Glu Val Val Gln Leu Glu Lys Gln Leu
 675 680 685

Gly Gly Gln Leu Ile Gln Glu Pro Arg Val Leu His Phe Lys Asp Ser
 690 695 700

Tyr His Asn Leu Arg Leu Ser Ile His Asp Val Pro Ser Ser Leu Trp
 705 710 715 720

Lys Ser Lys Leu Leu Val Ser Tyr Gln Glu Ile Pro Phe Tyr His Ile
 725 730 735

Trp Asn Gly Thr Gln Gln Tyr Leu His Cys Thr Phe Thr Leu Glu Arg
 740 745 750

Ile Asn Ala Ser Thr Ser Asp Leu Ala Cys Lys Val Trp Val Trp Gln
 755 760 765

Val Glu Gly Asp Gly Gln Ser Phe Asn Ile Asn Phe Asn Ile Thr Lys
 770 775 780

Asp Thr Arg Phe Ala Glu Leu Leu Ala Leu Glu Ser Glu Gly Gly Val
 785 790 795 800

Pro Ala Leu Val Gly Pro Ser Ala Phe Lys Ile Pro Phe Leu Ile Arg
 805 810 815

Gln Lys Ile Ile Ala Ser Leu Asp Pro Pro Cys Ser Arg Gly Ala Asp
 820 825 830

Trp Arg Thr Leu Ala Gln Lys Leu His Leu Asp Ser His Leu Ser Phe
 835 840 845

Phe Ala Ser Lys Pro Ser Pro Thr Ala Met Ile Leu Asn Leu Trp Glu
850 855 860

Ala Arg His Phe Pro Asn Gly Asn Leu Gly Gln Leu Ala Ala Ala Val
865 870 875 880

Ala Gly Leu Gly Gln Pro Asp Ala Gly Leu Phe Thr Val Ser Glu Ala
885 890 895

Glu Cys

<210> 14

<211> 544

<212> PRT

<213> Homo sapiens

<400> 14

Ala Arg Gly Asp Val Ala Leu Tyr Val Gly Leu Ile Ala Val Ala Val
1 5 10 15

Cys Leu Val Leu Leu Leu Leu Val Leu Ile Leu Val Tyr Cys Arg Lys
20 25 30

Lys Glu Gly Leu Asp Ser Asp Val Ala Asp Ser Ser Ile Leu Thr Ser
35 40 45

Gly Phe Gln Pro Val Ser Ile Lys Pro Ser Lys Ala Asp Asn Pro His
50 55 60

Leu Leu Thr Ile Gln Pro Asp Leu Ser Thr Thr Thr Thr Tyr Gln
65 70 75 80

Gly Ser Leu Cys Pro Arg Gln Asp Gly Pro Ser Pro Lys Phe Gln Leu
85 90 95

Thr Asn Gly His Leu Leu Ser Pro Leu Gly Gly Gly Arg His Thr Leu
100 105 110

His His Ser Ser Pro Thr Ser Glu Ala Glu Glu Phe Val Ser Arg Leu
115 120 125

Ser Thr Gln Asn Tyr Phe Arg Ser Leu Pro Arg Gly Thr Ser Asn Met
130 135 140

Thr Tyr Gly Thr Phe Asn Phe Leu Gly Gly Arg Leu Met Ile Pro Asn
145 150 155 160

Thr Gly Ile Ser Leu Leu Ile Pro Pro Asp Ala Ile Pro Arg Gly Lys
165 170 175

Ile Tyr Glu Ile Tyr Leu Thr Leu His Lys Pro Glu Asp Val Arg Leu
180 185 190

Pro Leu Ala Gly Cys Gln Thr Leu Leu Ser Pro Ile Val Ser Cys Gly
195 200 205

Pro Pro Gly Val Leu Leu Thr Arg Pro Val Ile Leu Ala Met Asp His
 210 215 220

Cys Gly Glu Pro Ser Pro Asp Ser Trp Ser Leu Arg Leu Lys Lys Gln
 225 230 235 240

Ser Cys Glu Gly Ser Trp Glu Asp Val Leu His Leu Gly Glu Glu Ala
 245 250 255

Pro Ser His Leu Tyr Tyr Cys Gln Leu Glu Ala Ser Ala Cys Tyr Val
 260 265 270

Phe Thr Glu Gln Leu Gly Arg Phe Ala Leu Val Gly Glu Ala Leu Ser
 275 280 285

Val Ala Ala Ala Lys Arg Leu Lys Leu Leu Leu Phe Ala Pro Val Ala
 290 295 300

Cys Thr Ser Leu Glu Tyr Asn Ile Arg Val Tyr Cys Leu His Asp Thr
 305 310 315 320

His Asp Ala Leu Lys Glu Val Val Gln Leu Glu Lys Gln Leu Gly Gly
 325 330 335

Gln Leu Ile Gln Glu Pro Arg Val Leu His Phe Lys Asp Ser Tyr His
 340 345 350

Asn Leu Arg Leu Ser Ile His Asp Val Pro Ser Ser Leu Trp Lys Ser
 355 360 365

Lys Leu Leu Val Ser Tyr Gln Glu Ile Pro Phe Tyr His Ile Trp Asn
 370 375 380

Gly Thr Gln Arg Tyr Leu His Cys Thr Phe Thr Leu Glu Arg Val Ser
 385 390 395 400

Pro Ser Thr Ser Asp Leu Ala Cys Lys Leu Trp Val Trp Gln Val Glu
 405 410 415

Gly Asp Gly Gln Ser Phe Ser Ile Asn Phe Asn Ile Thr Lys Asp Thr
 420 425 430

Arg Phe Ala Glu Leu Leu Ala Leu Glu Ser Glu Ala Gly Val Pro Ala
 435 440 445

Leu Val Gly Pro Ser Ala Phe Lys Ile Pro Phe Leu Ile Arg Gln Lys
 450 455 460

Ile Ile Ser Ser Leu Asp Pro Pro Cys Arg Arg Gly Ala Asp Trp Arg
 465 470 475 480

Thr Leu Ala Gln Lys Leu His Leu Asp Ser His Leu Ser Phe Phe Ala
 485 490 495

Ser Lys Pro Ser Pro Thr Ala Met Ile Leu Asn Leu Trp Glu Ala Arg
 500 505 510

His Phe Pro Asn Gly Asn Leu Ser Gln Leu Ala Ala Ala Val Ala Gly
 515 520 525

Leu Gly Gln Pro Asp Ala Gly Leu Phe Thr Val Ser Glu Ala Glu Cys
 530 535 540

<210> 15

<211> 931

<212> PRT

<213> Caenorhabditis elegans

<400> 15

Met Arg Lys Gly Leu Arg Ala Thr Ala Ala Arg Cys Gly Leu Gly Leu
 1 5 10 15

Gly Tyr Leu Leu Gln Met Leu Val Leu Pro Ala Leu Ala Leu Leu Ser
 20 25 30

Ala Ser Gly Thr Gly Ser Ala Ala Gln Asp Asp Glu Phe Phe His Glu
 35 40 45

Leu Pro Glu Thr Phe Pro Ser Asp Pro Pro Glu Pro Leu Pro His Phe
 50 55 60

Leu Ile Glu Pro Glu Glu Ala Tyr Ile Val Lys Asn Lys Pro Val Asn
 65 70 75 80

Leu Tyr Cys Lys Ala Ser Pro Ala Thr Gln Ile Tyr Phe Lys Cys Asn
 85 90 95

Ser Glu Trp Val His Gln Lys Asp His Val Val Asp Glu Arg Val Asp
 100 105 110

Glu Thr Ser Gly Leu Ile Val Arg Glu Val Ser Ile Glu Ile Ser Arg
 115 120 125

Gln Gln Val Glu Glu Leu Phe Gly Pro Glu Asp Tyr Trp Cys Gln Cys
 130 135 140

Val Ala Trp Ser Ser Ala Gly Thr Thr Lys Ser Arg Lys Ala Tyr Val
 145 150 155 160

Arg Ile Ala Tyr Leu Arg Lys Thr Phe Glu Gln Glu Pro Leu Gly Lys
 165 170 175

Glu Val Ser Leu Glu Gln Glu Val Leu Leu Gln Cys Arg Pro Pro Glu
 180 185 190

Gly Ile Pro Val Ala Glu Val Glu Trp Leu Lys Asn Glu Asp Ile Ile
 195 200 205

Asp Pro Ala Glu Asp Arg Asn Phe Tyr Ile Thr Ile Asp His Asn Leu

| | | | | |
|---|-----|-----|-----|---------|
| 210 | | 215 | | 220 |
| Ile Ile Lys Gln Ala Arg Leu Ser Asp Thr Ala Asn Tyr Thr Cys Val | | | | |
| 225 | | 230 | | 235 240 |
| Ala Lys Asn Ile Val Ala Lys Arg Lys Ser Thr Thr Ala Thr Val Ile | | | | |
| | 245 | | 250 | 255 |
| Val Tyr Val Asn Gly Gly Trp Ser Thr Trp Thr Glu Trp Ser Val Cys | | | | |
| | 260 | | 265 | 270 |
| Asn Ser Arg Cys Gly Arg Gly Tyr Gln Lys Arg Thr Arg Thr Cys Thr | | | | |
| | 275 | | 280 | 285 |
| Asn Pro Ala Pro Leu Asn Gly Gly Ala Phe Cys Glu Gly Gln Ser Val | | | | |
| | 290 | | 295 | 300 |
| Gln Lys Ile Ala Cys Thr Thr Leu Cys Pro Val Asp Gly Arg Trp Thr | | | | |
| 305 | | 310 | | 315 320 |
| Ser Trp Ser Lys Trp Ser Thr Cys Gly Thr Glu Cys Thr His Trp Arg | | | | |
| | 325 | | 330 | 335 |
| Arg Arg Glu Cys Thr Ala Pro Ala Pro Lys Asn Gly Gly Lys Asp Cys | | | | |
| | 340 | | 345 | 350 |
| Asp Gly Leu Val Leu Gln Ser Lys Asn Cys Thr Asp Gly Leu Cys Met | | | | |
| | 355 | | 360 | 365 |
| Gln Ala Ala Pro Asp Ser Asp Asp Val Ala Leu Tyr Val Gly Ile Val | | | | |
| 370 | | 375 | | 380 |
| Ile Ala Val Thr Val Cys Leu Ala Ile Thr Val Val Val Ala Leu Phe | | | | |
| 385 | | 390 | | 395 400 |
| Val Tyr Arg Lys Asn His Arg Asp Phe Glu Ser Asp Ile Ile Asp Ser | | | | |
| | 405 | | 410 | 415 |
| Ser Ala Leu Asn Gly Gly Phe Gln Pro Val Asn Ile Lys Ala Ala Arg | | | | |
| | 420 | | 425 | 430 |
| Gln Asp Leu Leu Ala Val Pro Pro Asp Leu Thr Ser Ala Ala Ala Met | | | | |
| | 435 | | 440 | 445 |
| Tyr Arg Gly Pro Val Tyr Ala Leu His Asp Val Ser Asp Lys Ile Pro | | | | |
| 450 | | 455 | | 460 |
| Met Thr Asn Ser Pro Ile Leu Asp Pro Leu Pro Asn Leu Lys Ile Lys | | | | |
| 465 | | 470 | | 475 480 |
| Val Tyr Asn Ser Ser Gly Ala Val Thr Pro Gln Asp Asp Leu Ala Glu | | | | |
| | 485 | | 490 | 495 |
| Phe Ser Ser Lys Leu Ser Pro Gln Met Thr Gln Ser Leu Leu Glu Asn | | | | |
| | 500 | | 505 | 510 |
| Glu Ala Leu Asn Leu Lys Asn Gln Ser Leu Ala Arg Gln Thr Asp Pro | | | | |

| 515 | | | | | 520 | | | | | 525 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Cys | Thr | Ala | Phe | Gly | Thr | Phe | Asn | Ser | Leu | Gly | Gly | His | Leu | Ile |
| 530 | | | | | 535 | | | | | 540 | | | | | |
| Ile | Pro | Asn | Ser | Gly | Val | Ser | Leu | Leu | Ile | Pro | Ala | Gly | Ala | Ile | Pro |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| Gln | Gly | Arg | Val | Tyr | Glu | Met | Tyr | Val | Thr | Val | His | Arg | Lys | Glu | Asn |
| 565 | | | | | 570 | | | | | 575 | | | | | |
| Met | Arg | Pro | Pro | Met | Glu | Asp | Ser | Gln | Thr | Leu | Leu | Thr | Pro | Val | Val |
| 580 | | | | | 585 | | | | | 590 | | | | | |
| Ser | Cys | Gly | Pro | Pro | Gly | Ala | Leu | Leu | Thr | Arg | Pro | Val | Ile | Leu | Thr |
| 595 | | | | | 600 | | | | | 605 | | | | | |
| Leu | His | His | Cys | Ala | Asp | Pro | Ser | Thr | Glu | Asp | Trp | Lys | Ile | Gln | Leu |
| 610 | | | | | 615 | | | | | 620 | | | | | |
| Lys | Asn | Gln | Ala | Val | Gln | Gly | Gln | Trp | Glu | Asp | Val | Val | Val | Val | Gly |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 |
| Glu | Glu | Asn | Phe | Thr | Thr | Pro | Cys | Tyr | Ile | Gln | Leu | Asp | Ala | Glu | Ala |
| 645 | | | | | 650 | | | | | 655 | | | | | |
| Cys | His | Ile | Leu | Thr | Glu | Asn | Leu | Ser | Thr | Tyr | Ala | Leu | Val | Gly | Gln |
| 660 | | | | | 665 | | | | | 670 | | | | | |
| Ser | Thr | Thr | Lys | Ala | Ala | Ala | Lys | Arg | Leu | Lys | Leu | Ala | Ile | Phe | Gly |
| 675 | | | | | 680 | | | | | 685 | | | | | |
| Pro | Leu | Cys | Cys | Ser | Ser | Leu | Glu | Tyr | Ser | Ile | Arg | Val | Tyr | Cys | Leu |
| 690 | | | | | 695 | | | | | 700 | | | | | |
| Asp | Asp | Thr | Gln | Asp | Ala | Leu | Lys | Glu | Val | Leu | Gln | Leu | Glu | Arg | Gln |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 |
| Met | Gly | Gly | Gln | Leu | Leu | Glu | Glu | Pro | Lys | Ala | Leu | His | Phe | Lys | Gly |
| 725 | | | | | 730 | | | | | 735 | | | | | |
| Ser | Ile | His | Asn | Leu | Arg | Leu | Ser | Ile | His | Asp | Ile | Ala | His | Ser | Leu |
| 740 | | | | | 745 | | | | | 750 | | | | | |
| Trp | Lys | Ser | Lys | Leu | Leu | Ala | Lys | Tyr | Gln | Glu | Ile | Pro | Phe | Tyr | His |
| 755 | | | | | 760 | | | | | 765 | | | | | |
| Ile | Trp | Ser | Gly | Ser | Gln | Arg | Asn | Leu | His | Cys | Thr | Phe | Thr | Leu | Glu |
| 770 | | | | | 775 | | | | | 780 | | | | | |
| Arg | Leu | Ser | Leu | Asn | Thr | Val | Glu | Leu | Val | Cys | Lys | Leu | Cys | Val | Arg |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 |
| Gln | Val | Glu | Gly | Glu | Gly | Gln | Ile | Phe | Gln | Leu | Asn | Cys | Thr | Val | Ser |
| 805 | | | | | 810 | | | | | 815 | | | | | |
| Glu | Glu | Pro | Thr | Gly | Ile | Asp | Leu | Pro | Leu | Leu | Asp | Pro | Ala | Ser | Thr |

| 820 | | | | | 825 | | | | | 830 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Thr | Thr | Val | Thr | Gly | Pro | Ser | Ala | Phe | Ser | Ile | Pro | Leu | Pro | Ile |
| | 835 | | | | | | 840 | | | | | 845 | | | |
| Arg | Gln | Lys | Leu | Cys | Ser | Ser | Leu | Asp | Ala | Pro | Gln | Thr | Arg | Gly | His |
| | 850 | | | | | 855 | | | | | 860 | | | | |
| Asp | Trp | Arg | Met | Leu | Ala | His | Lys | Leu | Asn | Leu | Asp | Arg | Tyr | Leu | Asn |
| 865 | | | | | 870 | | | | 875 | | | | | 880 | |
| Tyr | Phe | Ala | Thr | Lys | Ser | Ser | Pro | Thr | Gly | Val | Ile | Leu | Asp | Leu | Trp |
| | | | | 885 | | | | | 890 | | | | | 895 | |
| Glu | Ala | Gln | Asn | Phe | Pro | Asp | Gly | Asn | Leu | Ser | Met | Leu | Ala | Ala | Val |
| | | | 900 | | | | | 905 | | | | | 910 | | |
| Leu | Glu | Glu | Met | Gly | Arg | His | Glu | Thr | Val | Val | Ser | Leu | Ala | Ala | Glu |
| | 915 | | | | | | 920 | | | | | 925 | | | |
| Gly | Gln | Tyr | | | | | | | | | | | | | |
| | 930 | | | | | | | | | | | | | | |

<210> 16
 <211> 931
 <212> PRT
 <213> Caenorhabditis elegans

| | | | | | | | | | | | | | | | |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 16 | | | | | | | | | | | | | | | |
| Met | Arg | Lys | Gly | Leu | Arg | Ala | Thr | Ala | Ala | Arg | Cys | Gly | Leu | Gly | Leu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Gly | Tyr | Leu | Leu | Gln | Met | Leu | Val | Leu | Pro | Ala | Leu | Ala | Leu | Leu | Ser |
| | | | 20 | | | | | 25 | | | | | | 30 | |
| Ala | Ser | Gly | Thr | Gly | Ser | Ala | Ala | Gln | Asp | Asp | Asp | Phe | Phe | His | Glu |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Leu | Pro | Glu | Thr | Phe | Pro | Ser | Asp | Pro | Pro | Glu | Pro | Leu | Pro | His | Phe |
| | 50 | | | | | 55 | | | | 60 | | | | | |
| Leu | Ile | Glu | Pro | Glu | Glu | Ala | Tyr | Ile | Val | Lys | Asn | Lys | Pro | Val | Asn |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Leu | Tyr | Cys | Lys | Ala | Ser | Pro | Ala | Thr | Gln | Ile | Tyr | Phe | Lys | Cys | Asn |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ser | Glu | Trp | Val | His | Gln | Lys | Asp | His | Ile | Val | Asp | Glu | Arg | Val | Asp |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Glu | Thr | Ser | Gly | Leu | Ile | Val | Arg | Glu | Val | Ser | Ile | Glu | Ile | Ser | Arg |
| | 115 | | | | | | 120 | | | | | 125 | | | |
| Gln | Gln | Val | Glu | Glu | Leu | Phe | Gly | Pro | Glu | Asp | Tyr | Trp | Cys | Gln | Cys |
| | 130 | | | | | 135 | | | | | 140 | | | | |

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Ala | Trp | Ser | Ser | Ala | Gly | Thr | Thr | Lys | Ser | Arg | Lys | Ala | Tyr | Val | 145 | 150 | 155 | 160 |
| Arg | Ile | Ala | Tyr | Leu | Arg | Lys | Thr | Phe | Glu | Gln | Glu | Pro | Leu | Gly | Lys | 165 | 170 | 175 | |
| Glu | Val | Ser | Leu | Glu | Gln | Glu | Val | Leu | Leu | Gln | Cys | Arg | Pro | Pro | Glu | 180 | 185 | 190 | |
| Gly | Ile | Pro | Val | Ala | Glu | Val | Glu | Trp | Leu | Lys | Asn | Glu | Asp | Ile | Ile | 195 | 200 | 205 | |
| Asp | Pro | Val | Glu | Asp | Arg | Asn | Phe | Tyr | Ile | Thr | Ile | Asp | His | Asn | Leu | 210 | 215 | 220 | |
| Ile | Ile | Lys | Gln | Ala | Arg | Leu | Ser | Asp | Thr | Ala | Asn | Tyr | Thr | Cys | Val | 225 | 230 | 235 | 240 |
| Ala | Lys | Asn | Ile | Val | Ala | Lys | Arg | Lys | Ser | Thr | Thr | Ala | Thr | Val | Ile | 245 | 250 | 255 | |
| Val | Tyr | Val | Asn | Gly | Gly | Trp | Ser | Thr | Trp | Thr | Glu | Trp | Ser | Val | Cys | 260 | 265 | 270 | |
| Asn | Ser | Arg | Cys | Gly | Arg | Gly | Tyr | Gln | Lys | Arg | Thr | Arg | Thr | Cys | Thr | 275 | 280 | 285 | |
| Asn | Pro | Ala | Pro | Leu | Asn | Gly | Gly | Ala | Phe | Cys | Glu | Gly | Gln | Ser | Val | 290 | 295 | 300 | |
| Gln | Lys | Ile | Ala | Cys | Thr | Thr | Leu | Cys | Pro | Val | Asp | Gly | Arg | Trp | Thr | 305 | 310 | 315 | 320 |
| Pro | Trp | Ser | Lys | Trp | Ser | Thr | Cys | Gly | Thr | Glu | Cys | Thr | His | Trp | Arg | 325 | 330 | 335 | |
| Arg | Arg | Glu | Cys | Thr | Ala | Pro | Ala | Pro | Lys | Asn | Gly | Gly | Lys | Asp | Cys | 340 | 345 | 350 | |
| Asp | Gly | Leu | Val | Leu | Gln | Ser | Lys | Asn | Cys | Thr | Asp | Gly | Leu | Cys | Met | 355 | 360 | 365 | |
| Gln | Thr | Ala | Pro | Asp | Ser | Asp | Asp | Val | Ala | Leu | Tyr | Val | Gly | Ile | Val | 370 | 375 | 380 | |
| Ile | Ala | Val | Ile | Val | Cys | Leu | Ala | Ile | Ser | Val | Val | Val | Ala | Leu | Phe | 385 | 390 | 395 | 400 |
| Val | Tyr | Arg | Lys | Asn | His | Arg | Asp | Phe | Glu | Ser | Asp | Ile | Ile | Asp | Ser | 405 | 410 | 415 | |
| Ser | Ala | Leu | Asn | Gly | Gly | Phe | Gln | Pro | Val | Asn | Ile | Lys | Ala | Ala | Arg | 420 | 425 | 430 | |
| Gln | Asp | Leu | Leu | Ala | Val | Pro | Pro | Asp | Leu | Thr | Ser | Ala | Ala | Ala | Met | 435 | 440 | 445 | |

Tyr Arg Gly Pro Val Tyr Ala Leu His Asp Val Ser Asp Lys Ile Pro
 450 455 460
 Met Thr Asn Ser Pro Ile Leu Asp Pro Leu Pro Asn Leu Lys Ile Lys
 465 470 475 480
 Val Tyr Asn Thr Ser Gly Ala Val Thr Pro Gln Asp Asp Leu Ser Glu
 485 490 495
 Phe Thr Ser Lys Leu Ser Pro Gln Met Thr Gln Ser Leu Leu Glu Asn
 500 505 510
 Glu Ala Leu Ser Leu Lys Asn Gln Ser Leu Ala Arg Gln Thr Asp Pro
 515 520 525
 Ser Cys Thr Ala Phe Gly Ser Phe Asn Ser Leu Gly Gly His Leu Ile
 530 535 540
 Val Pro Asn Ser Gly Val Ser Leu Leu Ile Pro Ala Gly Ala Ile Pro
 545 550 555 560
 Gln Gly Arg Val Tyr Glu Met Tyr Val Thr Val His Arg Lys Glu Thr
 565 570 575
 Met Arg Pro Pro Met Asp Asp Ser Gln Thr Leu Leu Thr Pro Val Val
 580 585 590
 Ser Cys Gly Pro Pro Gly Ala Leu Leu Thr Arg Pro Val Val Leu Thr
 595 600 605
 Met His His Cys Ala Asp Pro Asn Thr Glu Asp Trp Lys Ile Leu Leu
 610 615 620
 Lys Asn Gln Ala Ala Gln Gly Gln Trp Glu Asp Val Val Val Val Gly
 625 630 635 640
 Glu Glu Asn Phe Thr Thr Pro Cys Tyr Ile Gln Leu Asp Ala Glu Ala
 645 650 655
 Cys His Ile Leu Thr Glu Asn Leu Ser Thr Tyr Ala Leu Val Gly His
 660 665 670
 Ser Thr Thr Lys Ala Ala Ala Lys Arg Leu Lys Leu Ala Ile Phe Gly
 675 680 685
 Pro Leu Cys Cys Ser Ser Leu Glu Tyr Ser Ile Arg Val Tyr Cys Leu
 690 695 700
 Asp Asp Thr Gln Asp Ala Leu Lys Glu Ile Leu His Leu Glu Arg Gln
 705 710 715 720
 Met Gly Gly Gln Leu Leu Glu Glu Pro Lys Ala Leu His Phe Lys Gly
 725 730 735
 Ser Thr His Asn Leu Arg Leu Ser Ile His Asp Ile Ala His Ser Leu
 740 745 750

Trp Lys Ser Lys Leu Leu Ala Lys Tyr Gln Glu Ile Pro Phe Tyr His
755 760 765

Val Trp Ser Gly Ser Gln Arg Asn Leu His Cys Thr Phe Thr Leu Glu
770 775 780

Arg Phe Ser Leu Asn Thr Val Glu Leu Val Cys Lys Leu Cys Val Arg
785 790 795 800

Gln Val Glu Gly Glu Gly Gln Ile Phe Gln Leu Asn Cys Thr Val Ser
805 810 815

Glu Glu Pro Thr Gly Ile Asp Leu Pro Leu Leu Asp Pro Ala Asn Thr
820 825 830

Ile Thr Thr Val Thr Gly Pro Ser Ala Phe Ser Ile Pro Leu Pro Ile
835 840 845

Arg Gln Lys Leu Cys Ser Ser Leu Asp Ala Pro Gln Thr Arg Gly His
850 855 860

Asp Trp Arg Met Leu Ala His Lys Leu Asn Leu Asp Arg Tyr Leu Asn
865 870 875 880

Tyr Phe Ala Thr Lys Ser Ser Pro Thr Gly Val Ile Leu Asp Leu Trp
885 890 895

Glu Ala Gln Asn Phe Pro Asp Gly Asn Leu Ser Met Leu Ala Ala Val
900 905 910

Leu Glu Glu Met Gly Arg His Glu Thr Val Val Ser Leu Ala Ala Glu
915 920 925

Gly Gln Tyr
930

<210> 17

<211> 931

<212> PRT

<213> Caenorhabditis elegans

<400> 17

Met Arg Lys Gly Leu Arg Ala Thr Ala Ala Arg Cys Gly Leu Gly Leu
1 5 10 15

Gly Tyr Leu Leu Gln Met Leu Val Leu Pro Ala Leu Ala Leu Leu Ser
20 25 30

Ala Ser Gly Thr Gly Ser Ala Ala Gln Asp Asp Asp Phe Phe His Glu
35 40 45

Leu Pro Glu Thr Phe Pro Ser Asp Pro Pro Glu Pro Leu Pro His Phe
50 55 60

Leu Ile Glu Pro Glu Glu Ala Tyr Ile Val Lys Asn Lys Pro Val Asn
65 70 75 80

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Leu | Tyr | Cys | Lys | Ala | Ser | Pro | Ala | Thr | Gln | Ile | Tyr | Phe | Lys | Cys | Asn | | |
| | | | | 85 | | | | | 90 | | | | | 95 | | | |
| Ser | Glu | Trp | Val | His | Gln | Lys | Asp | His | Ile | Val | Asp | Glu | Arg | Val | Asp | | |
| | | | 100 | | | | | 105 | | | | | 110 | | | | |
| Glu | Thr | Ser | Gly | Leu | Ile | Val | Arg | Glu | Val | Ser | Ile | Glu | Ile | Ser | Arg | | |
| | | 115 | | | | | 120 | | | | | 125 | | | | | |
| Gln | Gln | Val | Glu | Glu | Leu | Phe | Gly | Pro | Glu | Asp | Tyr | Trp | Cys | Gln | Cys | | |
| | 130 | | | | | 135 | | | | | 140 | | | | | | |
| Val | Ala | Trp | Ser | Ser | Ala | Gly | Thr | Thr | Lys | Ser | Arg | Lys | Ala | Tyr | Val | | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | | |
| Arg | Ile | Ala | Tyr | Leu | Arg | Lys | Thr | Phe | Glu | Gln | Glu | Pro | Leu | Gly | Lys | | |
| | | | 165 | | | | | | 170 | | | | | 175 | | | |
| Glu | Val | Ser | Leu | Glu | Gln | Glu | Val | Leu | Leu | Gln | Cys | Arg | Pro | Pro | Glu | | |
| | | 180 | | | | | | 185 | | | | | 190 | | | | |
| Gly | Ile | Pro | Val | Ala | Glu | Val | Glu | Trp | Leu | Lys | Asn | Glu | Asp | Ile | Ile | | |
| | 195 | | | | | | 200 | | | | | 205 | | | | | |
| Asp | Pro | Val | Glu | Asp | Arg | Asn | Phe | Tyr | Ile | Thr | Ile | Asp | His | Asn | Leu | | |
| | 210 | | | | | 215 | | | | | 220 | | | | | | |
| Ile | Ile | Lys | Gln | Ala | Arg | Leu | Ser | Asp | Thr | Ala | Asn | Tyr | Thr | Cys | Val | | |
| 225 | | | | 230 | | | | | 235 | | | | | | 240 | | |
| Ala | Lys | Asn | Ile | Val | Ala | Lys | Arg | Lys | Ser | Thr | Thr | Ala | Thr | Val | Ile | | |
| | | | 245 | | | | | | 250 | | | | | 255 | | | |
| Val | Tyr | Val | Asn | Gly | Gly | Trp | Ser | Thr | Trp | Thr | Glu | Trp | Ser | Val | Cys | | |
| | | 260 | | | | | | 265 | | | | | 270 | | | | |
| Asn | Ser | Arg | Cys | Gly | Arg | Gly | Tyr | Gln | Lys | Arg | Thr | Arg | Thr | Cys | Thr | | |
| | | 275 | | | | | 280 | | | | | 285 | | | | | |
| Asn | Pro | Ala | Pro | Leu | Asn | Gly | Gly | Ala | Phe | Cys | Glu | Gly | Gln | Ser | Val | | |
| | 290 | | | | | 295 | | | | | 300 | | | | | | |
| Gln | Lys | Ile | Ala | Cys | Thr | Thr | Leu | Cys | Pro | Val | Asp | Gly | Arg | Trp | Thr | | |
| 305 | | | | 310 | | | | | | 315 | | | | | 320 | | |
| Pro | Trp | Ser | Lys | Trp | Ser | Thr | Cys | Gly | Thr | Glu | Cys | Thr | His | Trp | Arg | | |
| | | | 325 | | | | | 330 | | | | | 335 | | | | |
| Arg | Arg | Glu | Cys | Thr | Ala | Pro | Ala | Pro | Lys | Asn | Gly | Gly | Lys | Asp | Cys | | |
| | | 340 | | | | | 345 | | | | | | 350 | | | | |
| Asp | Gly | Leu | Val | Leu | Gln | Ser | Lys | Asn | Cys | Thr | Asp | Gly | Leu | Cys | Met | | |
| | 355 | | | | | 360 | | | | | 365 | | | | | | |
| Gln | Thr | Ala | Pro | Asp | Ser | Asp | Asp | Val | Ala | Leu | Tyr | Val | Gly | Ile | Val | | |
| | 370 | | | | | 375 | | | | | 380 | | | | | | |

Ile Ala Val Ile Val Cys Leu Ala Ile Ser Val Val Val Ala Leu Phe
 385 390 395 400
 Val Tyr Arg Lys Asn His Arg Asp Phe Glu Ser Asp Ile Ile Asp Ser
 405 410 415
 Ser Ala Leu Asn Gly Gly Phe Gln Pro Val Asn Ile Lys Ala Ala Arg
 420 425 430
 Gln Asp Leu Leu Ala Val Pro Pro Asp Leu Thr Ser Ala Ala Ala Met
 435 440 445
 Tyr Arg Gly Pro Val Tyr Ala Leu His Asp Val Ser Asp Lys Ile Pro
 450 455 460
 Met Thr Asn Ser Pro Ile Leu Asp Pro Leu Pro Asn Leu Lys Ile Lys
 465 470 475 480
 Val Tyr Asn Thr Ser Gly Ala Val Ser Pro Gln Asp Asp Leu Ser Glu
 485 490 495
 Phe Thr Ser Lys Leu Ser Pro Gln Met Thr Gln Ser Leu Leu Glu Asn
 500 505 510
 Glu Ala Leu Ser Leu Lys Asn Gln Ser Leu Ala Arg Gln Thr Asp Pro
 515 520 525
 Ser Cys Thr Ala Phe Gly Ser Phe Asn Ser Leu Gly Gly His Leu Ile
 530 535 540
 Val Pro Asn Ser Gly Val Ser Leu Leu Ile Pro Ala Gly Ala Ile Pro
 545 550 555 560
 Gln Gly Arg Val Tyr Glu Met Tyr Val Thr Val His Arg Lys Glu Thr
 565 570 575
 Met Arg Pro Pro Met Asp Asp Ser Gln Thr Leu Leu Thr Pro Val Val
 580 585 590
 Ser Cys Gly Pro Pro Gly Ala Leu Leu Thr Arg Pro Val Val Leu Thr
 595 600 605
 Met His His Cys Ala Asp Pro Asn Thr Glu Asp Trp Lys Ile Leu Leu
 610 615 620
 Lys Asn Gln Ala Ala Gln Gly Gln Trp Glu Asp Val Val Val Val Gly
 625 630 635 640
 Glu Glu Asn Phe Thr Thr Pro Cys Tyr Ile Lys Leu Asp Ala Glu Ala
 645 650 655
 Cys His Ile Leu Thr Glu Asn Leu Ser Thr Tyr Ala Leu Val Gly His
 660 665 670
 Ser Thr Thr Lys Ala Ala Ala Lys Arg Leu Lys Leu Ala Ile Phe Gly
 675 680 685

Pro Leu Cys Cys Ser Ser Leu Glu Tyr Ser Ile Arg Val Tyr Cys Leu
 690 695 700
 Asp Asp Thr Gln Asp Ala Leu Lys Glu Ile Leu His Leu Glu Arg Gln
 705 710 715 720
 Thr Gly Gly Gln Leu Leu Glu Glu Pro Lys Ala Leu His Phe Lys Gly
 725 730 735
 Ser Thr His Asn Leu Arg Leu Ser Ile His Asp Ile Ala His Ser Leu
 740 745 750
 Trp Lys Ser Lys Leu Leu Ala Lys Tyr Gln Glu Ile Pro Phe Tyr His
 755 760 765
 Val Trp Ser Gly Ser Gln Arg Asn Leu His Cys Thr Phe Thr Leu Glu
 770 775 780
 Arg Phe Ser Leu Asn Thr Val Glu Leu Val Cys Lys Leu Cys Val Arg
 785 790 795 800
 Gln Val Glu Gly Glu Gly Gln Ile Phe Gln Leu Asn Cys Thr Val Ser
 805 810 815
 Glu Glu Pro Thr Gly Ile Asp Leu Pro Leu Leu Asp Pro Ala Asn Thr
 820 825 830
 Ile Thr Thr Val Thr Gly Pro Ser Ala Phe Ser Ile Pro Leu Pro Ile
 835 840 845
 Arg Gln Lys Leu Cys Ser Ser Leu Asp Ala Pro Gln Thr Arg Gly His
 850 855 860
 Asp Trp Arg Met Leu Ala His Lys Leu Asn Leu Asp Arg Tyr Leu Asn
 865 870 875 880
 Tyr Phe Ala Thr Lys Ser Ser Pro Thr Gly Val Ile Leu Asp Leu Trp
 885 890 895
 Glu Ala Gln Asn Phe Pro Asp Gly Asn Leu Ser Met Leu Ala Ala Val
 900 905 910
 Leu Glu Glu Met Gly Arg His Glu Thr Val Val Ser Leu Ala Ala Glu
 915 920 925
 Gly Gln Tyr
 930

<210> 18

<211> 4349

<212> PRT

<213> Homo sapiens

<400> 18

Met Thr Ile Ala Leu Leu Gly Phe Ala Ile Phe Leu Leu His Cys Ala

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
| 1 | 5 | 10 | 15 | | | | | | | | | | | | | | | | |
| Thr | Cys | Glu | Lys | Pro | Leu | Glu | Gly | Ile | Leu | Ser | Ser | Ser | Ala | Trp | His | | | | |
| | | | 20 | | | | | 25 | | | | | 30 | | | | | | |
| Phe | Thr | His | Ser | His | Tyr | Asn | Ala | Thr | Ile | Tyr | Glu | Asn | Ser | Ser | Pro | | | | |
| | | 35 | | | | | 40 | | | | | 45 | | | | | | | |
| Lys | Thr | Tyr | Val | Glu | Ser | Phe | Glu | Lys | Met | Gly | Ile | Tyr | Leu | Ala | Glu | | | | |
| | 50 | | | | | 55 | | | | | 60 | | | | | | | | |
| Pro | Gln | Trp | Ala | Val | Arg | Tyr | Arg | Ile | Ile | Ser | Gly | Asp | Val | Ala | Asn | | | | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | | | | |
| Val | Phe | Lys | Thr | Glu | Glu | Tyr | Val | Val | Gly | Asn | Phe | Cys | Phe | Leu | Arg | | | | |
| | | | | 85 | | | | | 90 | | | | | 95 | | | | | |
| Ile | Arg | Thr | Lys | Ser | Ser | Asn | Thr | Ala | Leu | Leu | Asn | Arg | Glu | Val | Arg | | | | |
| | | | 100 | | | | | 105 | | | | | 110 | | | | | | |
| Asp | Ser | Tyr | Thr | Leu | Ile | Ile | Gln | Ala | Thr | Glu | Lys | Thr | Leu | Glu | Leu | | | | |
| | | 115 | | | | | 120 | | | | | 125 | | | | | | | |
| Glu | Ala | Leu | Thr | Arg | Val | Val | Val | His | Ile | Leu | Asp | Gln | Asn | Asp | Leu | | | | |
| | | 130 | | | | 135 | | | | | 140 | | | | | | | | |
| Lys | Pro | Leu | Phe | Ser | Pro | Pro | Ser | Tyr | Arg | Val | Thr | Ile | Ser | Glu | Asp | | | | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | | | | |
| Met | Pro | Leu | Lys | Ser | Pro | Ile | Cys | Lys | Val | Thr | Ala | Thr | Asp | Ala | Asp | | | | |
| | | | | 165 | | | | | 170 | | | | | 175 | | | | | |
| Leu | Gly | Gln | Asn | Ala | Glu | Phe | Tyr | Tyr | Ala | Phe | Asn | Thr | Arg | Ser | Glu | | | | |
| | | | 180 | | | | | 185 | | | | | 190 | | | | | | |
| Met | Phe | Ala | Ile | His | Pro | Thr | Ser | Gly | Val | Val | Thr | Val | Ala | Gly | Lys | | | | |
| | | 195 | | | | | 200 | | | | | 205 | | | | | | | |
| Leu | Asn | Val | Thr | Trp | Arg | Gly | Lys | His | Glu | Leu | Gln | Val | Leu | Ala | Val | | | | |
| | 210 | | | | | 215 | | | | | 220 | | | | | | | | |
| Asp | Arg | Met | Arg | Lys | Ile | Ser | Glu | Gly | Asn | Gly | Phe | Gly | Ser | Leu | Ala | | | | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | | | | |
| Ala | Leu | Val | Val | His | Val | Glu | Pro | Ala | Leu | Arg | Lys | Pro | Pro | Ala | Ile | | | | |
| | | | | 245 | | | | | 250 | | | | | 255 | | | | | |
| Ala | Ser | Val | Val | Val | Thr | Pro | Pro | Asp | Ser | Asn | Asp | Gly | Thr | Thr | Tyr | | | | |
| | | | 260 | | | | | 265 | | | | | 270 | | | | | | |
| Ala | Thr | Val | Leu | Val | Asp | Ala | Asn | Ser | Ser | Gly | Ala | Glu | Val | Glu | Ser | | | | |
| | | 275 | | | | | 280 | | | | | 285 | | | | | | | |
| Val | Glu | Val | Val | Gly | Gly | Asp | Pro | Gly | Lys | His | Phe | Lys | Ala | Ile | Lys | | | | |
| | 290 | | | | | 295 | | | | | 300 | | | | | | | | |
| Ser | Tyr | Ala | Arg | Ser | Asn | Glu | Phe | Ser | Leu | Val | Ser | Val | Lys | Asp | Ile | | | | |

| | | | | | | |
|---|-----|-----|-----|-----|-----|-----|
| 305 | | 310 | | 315 | | 320 |
| Asn Trp Met Glu Tyr Leu His Gly Phe Asn Leu Ser Leu Gln Ala Arg | | | | | | |
| | 325 | | | 330 | | 335 |
| Ser Gly Ser Gly Pro Tyr Phe Tyr Ser Gln Ile Arg Gly Phe His Leu | | | | | | |
| | 340 | | 345 | | 350 | |
| Pro Pro Ser Lys Leu Ser Ser Leu Lys Phe Glu Lys Ala Val Tyr Arg | | | | | | |
| | 355 | | 360 | | 365 | |
| Val Gln Leu Ser Glu Phe Ser Pro Pro Gly Ser Arg Val Val Met Val | | | | | | |
| | 370 | | 375 | | 380 | |
| Arg Val Thr Pro Ala Phe Pro Asn Leu Gln Tyr Val Leu Lys Pro Ser | | | | | | |
| | 385 | | 390 | | 395 | 400 |
| Ser Glu Asn Val Gly Phe Lys Leu Asn Ala Arg Thr Gly Leu Ile Thr | | | | | | |
| | | 405 | | 410 | | 415 |
| Thr Thr Lys Leu Met Asp Phe His Asp Arg Ala His Tyr Gln Leu His | | | | | | |
| | | 420 | | 425 | | 430 |
| Ile Arg Thr Ser Pro Gly Gln Ala Ser Thr Val Val Val Ile Asp Ile | | | | | | |
| | | 435 | | 440 | | 445 |
| Val Asp Cys Asn Asn His Ala Pro Leu Phe Asn Arg Ser Ser Tyr Asp | | | | | | |
| | 450 | | 455 | | 460 | |
| Gly Thr Leu Asp Glu Asn Ile Pro Pro Gly Thr Ser Val Leu Ala Val | | | | | | |
| | 465 | | 470 | | 475 | 480 |
| Thr Ala Thr Asp Arg Asp His Gly Glu Asn Gly Tyr Val Thr Tyr Ser | | | | | | |
| | | 485 | | 490 | | 495 |
| Ile Ala Gly Pro Lys Ala Leu Pro Phe Ser Ile Asp Pro Tyr Leu Gly | | | | | | |
| | | 500 | | 505 | | 510 |
| Ile Ile Ser Thr Ser Lys Pro Met Asp Tyr Glu Leu Met Lys Arg Ile | | | | | | |
| | | 515 | | 520 | | 525 |
| Tyr Thr Phe Arg Val Arg Ala Ser Asp Trp Gly Ser Pro Phe Arg Arg | | | | | | |
| | 530 | | 535 | | 540 | |
| Glu Lys Glu Val Ser Ile Phe Leu Gln Leu Arg Asn Leu Asn Asp Asn | | | | | | |
| | 545 | | 550 | | 555 | 560 |
| Gln Pro Met Phe Glu Glu Val Asn Cys Thr Gly Ser Ile Arg Gln Asp | | | | | | |
| | | 565 | | 570 | | 575 |
| Trp Pro Val Gly Lys Ser Ile Met Thr Met Ser Ala Ile Asp Val Asp | | | | | | |
| | | 580 | | 585 | | 590 |
| Glu Leu Gln Asn Leu Lys Tyr Glu Ile Val Ser Gly Asn Glu Leu Glu | | | | | | |
| | | 595 | | 600 | | 605 |
| Tyr Phe Asp Leu Asn His Phe Ser Gly Val Ile Ser Leu Lys Arg Pro | | | | | | |

| 610 | 615 | 620 |
|--|-----|-----|
| Phe Ile Asn Leu Thr Ala Gly Gln Pro Thr Ser Tyr Ser Leu Lys Ile 625 630 635 640 | | |
| Thr Ala Ser Asp Gly Lys Asn Tyr Ala Ser Pro Thr Thr Leu Asn Ile 645 650 655 | | |
| Thr Val Val Lys Asp Pro His Phe Glu Val Pro Val Thr Cys Asp Lys 660 665 670 | | |
| Thr Gly Val Leu Thr Gln Phe Thr Lys Thr Ile Leu His Phe Ile Gly 675 680 685 | | |
| Leu Gln Asn Gln Glu Ser Ser Asp Glu Glu Phe Thr Ser Leu Ser Thr 690 695 700 | | |
| Tyr Gln Ile Asn His Tyr Thr Pro Gln Phe Glu Asp His Phe Pro Gln 705 710 715 720 | | |
| Ser Ile Asp Val Leu Glu Ser Val Pro Ile Asn Thr Pro Leu Ala Arg 725 730 735 | | |
| Leu Ala Ala Thr Asp Pro Asp Ala Gly Phe Asn Gly Lys Leu Val Tyr 740 745 750 | | |
| Val Ile Ala Asp Gly Asn Glu Glu Gly Cys Phe Asp Ile Glu Leu Glu 755 760 765 | | |
| Thr Gly Leu Leu Thr Val Ala Ala Pro Leu Asp Tyr Glu Ala Thr Asn 770 775 780 | | |
| Phe Tyr Ile Leu Asn Val Thr Val Tyr Asp Leu Gly Thr Pro Gln Lys 785 790 795 800 | | |
| Ser Ser Trp Lys Leu Leu Thr Val Asn Val Lys Asp Trp Asn Asp Asn 805 810 815 | | |
| Ala Pro Arg Phe Pro Pro Gly Gly Tyr Gln Leu Thr Ile Ser Glu Asp 820 825 830 | | |
| Thr Glu Val Gly Thr Thr Ile Ala Glu Leu Thr Thr Lys Asp Ala Asp 835 840 845 | | |
| Ser Glu Asp Asn Gly Arg Val Arg Tyr Thr Leu Leu Ser Pro Thr Glu 850 855 860 | | |
| Lys Phe Ser Leu His Pro Leu Thr Gly Glu Leu Val Val Thr Gly His 865 870 875 880 | | |
| Leu Asp Arg Glu Ser Glu Pro Arg Tyr Ile Leu Lys Val Glu Ala Arg 885 890 895 | | |
| Asp Gln Pro Ser Lys Gly His Gln Leu Phe Ser Val Thr Asp Leu Ile 900 905 910 | | |
| Ile Thr Leu Glu Asp Val Asn Asp Asn Ser Pro Gln Cys Ile Thr Glu | | |

| 915 | | | | | 920 | | | | | 925 | | | | | | |
|------|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|-----|------|--|
| His | Asn | Arg | Leu | Lys | Val | Pro | Glu | Asp | Leu | Pro | Pro | Gly | Thr | Val | Leu | |
| 930 | | | | | 935 | | | | | 940 | | | | | | |
| Thr | Phe | Leu | Asp | Ala | Ser | Asp | Pro | Asp | Leu | Gly | Pro | Ala | Gly | Glu | Val | |
| 945 | | | | | 950 | | | | | 955 | | | | | 960 | |
| Arg | Tyr | Val | Leu | Met | Asp | Gly | Ala | His | Gly | Thr | Phe | Arg | Val | Asp | Leu | |
| 965 | | | | | 970 | | | | | 975 | | | | | | |
| Met | Thr | Gly | Ala | Leu | Ile | Leu | Glu | Arg | Glu | Leu | Asp | Phe | Glu | Arg | Arg | |
| 980 | | | | | 985 | | | | | 990 | | | | | | |
| Ala | Gly | Tyr | Asn | Leu | Ser | Leu | Trp | Ala | Ser | Asp | Gly | Gly | Arg | Pro | Leu | |
| 995 | | | | | 1000 | | | | | 1005 | | | | | | |
| Ala | Arg | Arg | Thr | Leu | Cys | His | Val | Glu | Val | Ile | Val | Leu | Asp | Val | Asn | |
| 1010 | | | | | 1015 | | | | | 1020 | | | | | | |
| Glu | Asn | Leu | His | Pro | Pro | His | Phe | Ala | Ser | Phe | Val | His | Gln | Gly | Gln | |
| 1025 | | | | | 1030 | | | | | 1035 | | | | | 1040 | |
| Val | Gln | Glu | Asn | Ser | Pro | Ser | Gly | Thr | Gln | Val | Ile | Val | Val | Ala | Ala | |
| 1045 | | | | | 1050 | | | | | 1055 | | | | | | |
| Gln | Asp | Asp | Asp | Ser | Gly | Leu | Asp | Gly | Glu | Leu | Gln | Tyr | Phe | Leu | Arg | |
| 1060 | | | | | 1065 | | | | | 1070 | | | | | | |
| Ala | Gly | Thr | Gly | Leu | Ala | Ala | Phe | Ser | Ile | Asn | Gln | Asp | Thr | Gly | Met | |
| 1075 | | | | | 1080 | | | | | 1085 | | | | | | |
| Ile | Gln | Thr | Leu | Ala | Pro | Leu | Asp | Arg | Glu | Phe | Ala | Ser | Tyr | Tyr | Trp | |
| 1090 | | | | | 1095 | | | | | 1100 | | | | | | |
| Leu | Thr | Val | Leu | Ala | Val | Asp | Arg | Gly | Ser | Val | Pro | Leu | Ser | Ser | Val | |
| 1105 | | | | | 1110 | | | | | 1115 | | | | | 1120 | |
| Thr | Glu | Val | Tyr | Ile | Glu | Val | Thr | Asp | Ala | Asn | Asp | Asn | Pro | Pro | Gln | |
| 1125 | | | | | 1130 | | | | | 1135 | | | | | | |
| Met | Ser | Gln | Ala | Val | Phe | Tyr | Pro | Ser | Ile | Gln | Glu | Asp | Ala | Pro | Val | |
| 1140 | | | | | 1145 | | | | | 1150 | | | | | | |
| Gly | Thr | Ser | Val | Leu | Gln | Leu | Asp | Ala | Trp | Asp | Pro | Asp | Ser | Ser | Ser | |
| 1155 | | | | | 1160 | | | | | 1165 | | | | | | |
| Lys | Gly | Lys | Leu | Thr | Phe | Asn | Ile | Thr | Ser | Gly | Asn | Tyr | Met | Gly | Phe | |
| 1170 | | | | | 1175 | | | | | 1180 | | | | | | |
| Phe | Met | Ile | His | Pro | Val | Thr | Gly | Leu | Leu | Ser | Thr | Ala | Gln | Gln | Leu | |
| 1185 | | | | | 1190 | | | | | 1195 | | | | | 1200 | |
| Asp | Arg | Glu | Asn | Lys | Asp | Glu | His | Ile | Leu | Glu | Val | Thr | Val | Leu | Asp | |
| 1205 | | | | | 1210 | | | | | 1215 | | | | | | |
| Asn | Gly | Glu | Pro | Ser | Leu | Lys | Ser | Thr | Ser | Arg | Val | Val | Val | Gly | Ile | |

| 1220 | 1225 | 1230 |
|--|------|------|
| Leu Asp Val Asn Asp Asn Pro Pro Ile Phe Ser His Lys Leu Phe Asn 1235 1240 1245 | | |
| Val Arg Leu Pro Glu Arg Leu Ser Pro Val Ser Pro Gly Pro Val Tyr 1250 1255 1260 | | |
| Arg Leu Val Ala Ser Asp Leu Asp Glu Gly Leu Asn Gly Arg Val Thr 1265 1270 1275 1280 | | |
| Tyr Ser Ile Glu Asp Ser Asp Glu Glu Ala Phe Ser Ile Asp Leu Val 1285 1290 1295 | | |
| Thr Gly Val Val Ser Ser Ser Ser Thr Phe Thr Ala Gly Glu Tyr Asn 1300 1305 1310 | | |
| Ile Leu Thr Ile Lys Ala Thr Asp Ser Gly Gln Pro Pro Leu Ser Ala 1315 1320 1325 | | |
| Ser Val Arg Leu His Ile Glu Trp Ile Pro Trp Pro Arg Pro Ser Ser 1330 1335 1340 | | |
| Ile Pro Leu Ala Phe Asp Glu Thr Tyr Tyr Ser Phe Thr Val Met Glu 1345 1350 1355 1360 | | |
| Thr Asp Pro Val Asn His Met Val Gly Val Ile Ser Val Glu Gly Arg 1365 1370 1375 | | |
| Pro Gly Leu Phe Trp Phe Asn Ile Ser Gly Gly Asp Lys Asp Met Asp 1380 1385 1390 | | |
| Phe Asp Ile Glu Lys Thr Thr Gly Ser Ile Val Ile Ala Arg Pro Leu 1395 1400 1405 | | |
| Asp Thr Arg Arg Arg Ser Asn Tyr Asn Leu Thr Val Glu Val Thr Asp 1410 1415 1420 | | |
| Gly Ser Arg Thr Ile Ala Thr Gln Val His Ile Phe Met Ile Ala Asn 1425 1430 1435 1440 | | |
| Ile Asn His His Arg Pro Gln Phe Leu Glu Thr Arg Tyr Glu Val Arg 1445 1450 1455 | | |
| Val Pro Gln Asp Thr Val Pro Gly Val Glu Leu Leu Arg Val Gln Ala 1460 1465 1470 | | |
| Ile Asp Gln Asp Lys Gly Lys Ser Leu Ile Tyr Thr Ile His Gly Ser 1475 1480 1485 | | |
| Gln Asp Pro Gly Ser Ala Ser Leu Phe Gln Leu Asp Pro Ser Ser Gly 1490 1495 1500 | | |
| Val Leu Val Thr Val Gly Lys Leu Asp Leu Gly Ser Gly Pro Ser Gln 1505 1510 1515 1520 | | |
| His Thr Leu Thr Val Met Val Arg Asp Gln Glu Ile Pro Ile Lys Arg | | |

| 1525 | 1530 | 1535 |
|---|------|------|
| Asn Phe Val Trp Val Thr Ile His Val Glu Asp Gly Asn Leu His Pro 1540 | 1545 | 1550 |
| Pro Arg Phe Thr Gln Leu His Tyr Glu Ala Ser Val Pro Asp Thr Ile 1555 | 1560 | 1565 |
| Ala Pro Gly Thr Glu Leu Leu Gln Val Arg Ala Met Asp Ala Asp Arg 1570 | 1575 | 1580 |
| Gly Val Asn Ala Glu Val His Tyr Ser Leu Leu Lys Gly Asn Ser Glu 1585 | 1590 | 1595 |
| Gly Phe Phe Asn Ile Asn Ala Leu Leu Gly Ile Ile Thr Leu Ala Gln 1605 | 1610 | 1615 |
| Lys Leu Asp Gln Ala Asn His Ala Pro His Thr Leu Thr Val Lys Ala 1620 | 1625 | 1630 |
| Glu Asp Gln Gly Ser Pro Gln Trp His Asp Leu Ala Thr Val Ile Ile 1635 | 1640 | 1645 |
| His Val Tyr Pro Ser Asp Arg Ser Ala Pro Ile Phe Ser Lys Ser Glu 1650 | 1655 | 1660 |
| Tyr Phe Val Glu Ile Pro Glu Ser Ile Pro Val Gly Ser Pro Ile Leu 1665 | 1670 | 1675 |
| Leu Val Ser Ala Met Ser Pro Ser Glu Val Thr Tyr Glu Leu Arg Glu 1685 | 1690 | 1695 |
| Gly Asn Lys Asp Gly Val Phe Ser Met Asn Ser Tyr Ser Gly Leu Ile 1700 | 1705 | 1710 |
| Ser Thr Gln Lys Lys Leu Asp His Glu Lys Ile Ser Ser Tyr Gln Leu 1715 | 1720 | 1725 |
| Lys Ile Arg Gly Ser Asn Met Ala Gly Ala Phe Thr Asp Val Met Val 1730 | 1735 | 1740 |
| Val Val Asp Ile Ile Asp Glu Asn Asp Asn Ala Pro Met Phe Leu Lys 1745 | 1750 | 1755 |
| Ser Thr Phe Val Gly Gln Ile Ser Glu Ala Ala Pro Leu Tyr Ser Met 1765 | 1770 | 1775 |
| Ile Met Asp Lys Asn Asn Asn Pro Phe Val Ile His Ala Ser Asp Ser 1780 | 1785 | 1790 |
| Asp Lys Glu Ala Asn Ser Leu Leu Val Tyr Lys Ile Leu Glu Pro Glu 1795 | 1800 | 1805 |
| Ala Leu Lys Phe Phe Lys Ile Asp Pro Ser Met Gly Thr Leu Thr Ile 1810 | 1815 | 1820 |
| Val Ser Glu Met Asp Tyr Glu Ser Met Pro Ser Phe Gln Phe Cys Val | | |

| | | | |
|---|------|------|------|
| 1825 | 1830 | 1835 | 1840 |
| Tyr Val His Asp Gln Gly Ser Pro Val Leu Phe Ala Pro Arg Pro Ala | | | |
| 1845 | 1850 | 1855 | |
| Gln Val Ile Ile His Val Arg Asp Val Asn Asp Ser Pro Pro Arg Phe | | | |
| 1860 | 1865 | 1870 | |
| Ser Glu Gln Ile Tyr Glu Val Ala Ile Val Gly Pro Ile His Pro Gly | | | |
| 1875 | 1880 | 1885 | |
| Met Glu Leu Leu Met Val Arg Ala Ser Asp Glu Asp Ser Glu Val Asn | | | |
| 1890 | 1895 | 1900 | |
| Tyr Ser Ile Lys Thr Gly Asn Ala Asp Glu Ala Val Thr Ile His Pro | | | |
| 1905 | 1910 | 1915 | 1920 |
| Val Thr Gly Ser Ile Ser Val Leu Asn Pro Ala Phe Leu Gly Leu Ser | | | |
| 1925 | 1930 | 1935 | |
| Arg Lys Leu Thr Ile Arg Ala Ser Asp Gly Leu Tyr Gln Asp Thr Ala | | | |
| 1940 | 1945 | 1950 | |
| Leu Val Lys Ile Ser Leu Thr Gln Val Leu Asp Lys Ser Leu Gln Phe | | | |
| 1955 | 1960 | 1965 | |
| Asp Gln Asp Val Tyr Trp Ala Ala Val Lys Glu Asn Leu Gln Asp Arg | | | |
| 1970 | 1975 | 1980 | |
| Lys Ala Leu Val Ile Leu Gly Ala Gln Gly Asn His Leu Asn Asp Thr | | | |
| 1985 | 1990 | 1995 | 2000 |
| Leu Ser Tyr Phe Leu Leu Asn Gly Thr Asp Met Phe His Met Val Gln | | | |
| 2005 | 2010 | 2015 | |
| Ser Ala Gly Val Leu Gln Thr Arg Gly Val Ala Phe Asp Arg Glu Gln | | | |
| 2020 | 2025 | 2030 | |
| Gln Asp Thr His Glu Leu Ala Val Glu Val Arg Asp Asn Arg Thr Pro | | | |
| 2035 | 2040 | 2045 | |
| Gln Arg Val Ala Gln Gly Leu Val Arg Val Ser Ile Glu Asp Val Asn | | | |
| 2050 | 2055 | 2060 | |
| Asp Asn Pro Pro Lys Phe Lys His Leu Pro Tyr Tyr Thr Ile Ile Gln | | | |
| 2065 | 2070 | 2075 | 2080 |
| Asp Gly Thr Glu Pro Gly Asp Val Leu Phe Gln Val Ser Ala Thr Asp | | | |
| 2085 | 2090 | 2095 | |
| Glu Asp Leu Gly Thr Asn Gly Ala Val Thr Tyr Glu Phe Ala Glu Asp | | | |
| 2100 | 2105 | 2110 | |
| Tyr Thr Tyr Phe Arg Ile Asp Pro Tyr Leu Gly Asp Ile Ser Leu Lys | | | |
| 2115 | 2120 | 2125 | |
| Lys Pro Phe Asp Tyr Gln Ala Leu Asn Lys Tyr His Leu Lys Val Ile | | | |

| 2130 | 2135 | 2140 |
|---|------|----------------|
| Ala Arg Asp Gly Gly Thr Pro Ser Leu Gln Ser Glu Glu Glu Val Leu | | |
| 2145 | 2150 | 2155 2160 |
| Val Thr Val Arg Asn Lys Ser Asn Pro Leu Phe Gln Ser Pro Tyr Tyr | | |
| | 2165 | 2170 2175 |
| Lys Val Arg Val Pro Glu Asn Ile Thr Leu Tyr Thr Pro Ile Leu His | | |
| | 2180 | 2185 2190 |
| Thr Gln Ala Arg Ser Pro Glu Gly Leu Arg Leu Ile Tyr Asn Ile Val | | |
| | 2195 | 2200 2205 |
| Glu Glu Glu Pro Leu Met Leu Phe Thr Thr Asp Phe Lys Thr Gly Val | | |
| | 2210 | 2215 2220 |
| Leu Thr Val Thr Gly Pro Leu Asp Tyr Glu Ser Lys Thr Lys His Val | | |
| | 2225 | 2230 2235 2240 |
| Phe Thr Val Arg Ala Thr Asp Thr Ala Leu Gly Ser Phe Ser Glu Ala | | |
| | 2245 | 2250 2255 |
| Thr Val Glu Val Leu Val Glu Asp Val Asn Asp Asn Pro Pro Thr Phe | | |
| | 2260 | 2265 2270 |
| Ser Gln Leu Val Tyr Thr Thr Ser Ile Ser Glu Gly Leu Pro Ala Gln | | |
| | 2275 | 2280 2285 |
| Thr Pro Val Ile Gln Leu Leu Ala Ser Asp Gln Asp Ser Gly Arg Asn | | |
| | 2290 | 2295 2300 |
| Arg Asp Val Ser Tyr Gln Ile Val Glu Asp Gly Ser Asp Val Ser Lys | | |
| | 2305 | 2310 2315 2320 |
| Phe Phe Gln Ile Asn Gly Ser Thr Gly Glu Met Ser Thr Val Gln Glu | | |
| | 2325 | 2330 2335 |
| Leu Asp Tyr Glu Ala Gln Gln His Phe His Val Lys Val Arg Ala Met | | |
| | 2340 | 2345 2350 |
| Asp Lys Gly Asp Pro Pro Leu Thr Gly Glu Thr Leu Val Val Val Asn | | |
| | 2355 | 2360 2365 |
| Val Ser Asp Ile Asn Asp Asn Pro Pro Glu Phe Arg Gln Pro Gln Tyr | | |
| | 2370 | 2375 2380 |
| Glu Ala Asn Val Ser Glu Leu Ala Thr Cys Gly His Leu Val Leu Lys | | |
| | 2385 | 2390 2395 2400 |
| Val Gln Ala Ile Asp Pro Asp Ser Arg Asp Thr Ser Arg Leu Glu Tyr | | |
| | 2405 | 2410 2415 |
| Leu Ile Leu Ser Gly Asn Gln Asp Arg His Phe Phe Ile Asn Ser Ser | | |
| | 2420 | 2425 2430 |
| Ser Gly Ile Ile Ser Met Phe Asn Leu Cys Lys Lys His Leu Asp Ser | | |

| 2435 | 2440 | 2445 |
|---|------|-----------|
| Ser Tyr Asn Leu Arg Val Gly Ala Ser Asp Gly Val Phe Arg Ala Thr 2450 | 2455 | 2460 |
| Val Pro Val Tyr Ile Asn Thr Thr Asn Ala Asn Lys Tyr Ser Pro Glu 2465 | 2470 | 2475 2480 |
| Phe Gln Gln His Leu Tyr Glu Ala Glu Leu Ala Glu Asn Ala Met Val 2485 | 2490 | 2495 |
| Gly Thr Lys Val Ile Asp Leu Leu Ala Ile Asp Lys Asp Ser Gly Pro 2500 | 2505 | 2510 |
| Tyr Gly Thr Ile Asp Tyr Thr Ile Ile Asn Lys Leu Ala Ser Glu Lys 2515 | 2520 | 2525 |
| Phe Ser Ile Asn Pro Asn Gly Gln Ile Ala Thr Leu Gln Lys Leu Asp 2530 | 2535 | 2540 |
| Arg Glu Asn Ser Thr Glu Arg Val Ile Ala Ile Lys Val Met Ala Arg 2545 | 2550 | 2555 2560 |
| Asp Gly Gly Gly Arg Val Ala Phe Cys Thr Val Lys Ile Ile Leu Thr 2565 | 2570 | 2575 |
| Asp Glu Asn Asp Asn Pro Pro Gln Phe Lys Ala Ser Glu Tyr Thr Val 2580 | 2585 | 2590 |
| Ser Ile Gln Ser Asn Val Ser Lys Asp Ser Pro Val Ile Gln Val Leu 2595 | 2600 | 2605 |
| Ala Tyr Asp Ala Asp Glu Gly Gln Asn Ala Asp Val Thr Tyr Ser Val 2610 | 2615 | 2620 |
| Asn Pro Glu Asp Leu Val Lys Asp Val Ile Glu Ile Asn Pro Val Thr 2625 | 2630 | 2635 2640 |
| Gly Val Val Lys Val Lys Asp Ser Leu Val Gly Leu Glu Asn Gln Thr 2645 | 2650 | 2655 |
| Leu Asp Phe Phe Ile Lys Ala Gln Asp Gly Gly Pro Pro His Trp Asn 2660 | 2665 | 2670 |
| Ser Leu Val Pro Val Arg Leu Gln Val Val Pro Lys Lys Val Ser Leu 2675 | 2680 | 2685 |
| Pro Lys Phe Ser Glu Pro Leu Tyr Thr Phe Ser Ala Pro Glu Asp Leu 2690 | 2695 | 2700 |
| Pro Glu Gly Ser Glu Ile Gly Ile Val Lys Ala Val Ala Ala Gln Asp 2705 | 2710 | 2715 2720 |
| Pro Val Ile Tyr Ser Leu Val Arg Gly Thr Thr Pro Glu Ser Asn Lys 2725 | 2730 | 2735 |
| Asp Gly Val Phe Ser Leu Asp Pro Asp Thr Gly Val Ile Lys Val Arg | | |

| | | |
|---|---------------------------------|-----------|
| 2740 | 2745 | 2750 |
| Lys Pro Met Asp His Glu Ser Thr | Lys Leu Tyr Gln Ile Asp Val Met | |
| 2755 | 2760 | 2765 |
| Ala His Cys Leu Gln Asn Thr Asp Val Val Ser Leu Val Ser Val Asn | | |
| 2770 | 2775 | 2780 |
| Ile Gln Val Gly Asp Val Asn Asp Asn Arg Pro Val Phe Glu Ala Asp | | |
| 2785 | 2790 | 2795 2800 |
| Pro Tyr Lys Ala Val Leu Thr Glu Asn Met Pro Val Gly Thr Ser Val | | |
| 2805 | 2810 | 2815 |
| Ile Gln Val Thr Ala Ile Asp Lys Asp Thr Gly Arg Asp Gly Gln Val | | |
| 2820 | 2825 | 2830 |
| Ser Tyr Arg Leu Ser Ala Asp Pro Gly Ser Asn Val His Glu Leu Phe | | |
| 2835 | 2840 | 2845 |
| Ala Ile Asp Ser Glu Ser Gly Trp Ile Thr Thr Leu Gln Glu Leu Asp | | |
| 2850 | 2855 | 2860 |
| Cys Glu Thr Cys Gln Thr Tyr His Phe His Val Val Ala Tyr Asp His | | |
| 2865 | 2870 | 2875 2880 |
| Gly Gln Thr Ile Gln Leu Ser Ser Gln Ala Leu Val Gln Val Ser Ile | | |
| 2885 | 2890 | 2895 |
| Thr Asp Glu Asn Asp Asn Ala Pro Arg Phe Ala Ser Glu Glu Tyr Arg | | |
| 2900 | 2905 | 2910 |
| Gly Ser Val Val Glu Asn Ser Glu Pro Gly Glu Leu Val Ala Thr Leu | | |
| 2915 | 2920 | 2925 |
| Lys Thr Leu Asp Ala Asp Ile Ser Glu Gln Asn Arg Gln Val Thr Cys | | |
| 2930 | 2935 | 2940 |
| Tyr Ile Thr Glu Gly Asp Pro Leu Gly Gln Phe Gly Ile Ser Gln Val | | |
| 2945 | 2950 | 2955 2960 |
| Gly Asp Glu Trp Arg Ile Ser Ser Arg Lys Thr Leu Asp Arg Glu His | | |
| 2965 | 2970 | 2975 |
| Thr Ala Lys Tyr Leu Leu Arg Val Thr Ala Ser Asp Gly Lys Phe Gln | | |
| 2980 | 2985 | 2990 |
| Ala Ser Val Thr Val Glu Ile Phe Val Leu Asp Val Asn Asp Asn Ser | | |
| 2995 | 3000 | 3005 |
| Pro Gln Cys Ser Gln Leu Leu Tyr Thr Gly Lys Val His Glu Asp Val | | |
| 3010 | 3015 | 3020 |
| Phe Pro Gly His Phe Ile Leu Lys Val Ser Ala Thr Asp Leu Asp Thr | | |
| 3025 | 3030 | 3035 3040 |
| Asp Thr Asn Ala Gln Ile Thr Tyr Ser Leu His Gly Pro Gly Ala His | | |

| | | |
|---|-----------------------------|-----------|
| 3045 | 3050 | 3055 |
| Glu Phe Lys Leu Asp Pro His Thr Gly | Glu Leu Thr Thr Leu Thr Ala | |
| 3060 | 3065 | 3070 |
| Leu Asp Arg Glu Arg Lys Asp Val Phe Asn Leu Val Ala Lys Ala Thr | | |
| 3075 | 3080 | 3085 |
| Asp Gly Gly Gly Arg Ser Cys Gln Ala Asp Ile Thr Leu His Val Glu | | |
| 3090 | 3095 | 3100 |
| Asp Val Asn Asp Asn Ala Pro Arg Phe Phe Pro Ser His Cys Ala Val | | |
| 3105 | 3110 | 3115 3120 |
| Ala Val Phe Asp Asn Thr Thr Val Lys Thr Pro Val Ala Val Val Phe | | |
| 3125 | 3130 | 3135 |
| Ala Arg Asp Pro Asp Gln Gly Ala Asn Ala Gln Val Val Tyr Ser Leu | | |
| 3140 | 3145 | 3150 |
| Pro Asp Ser Ala Glu Gly His Phe Ser Ile Asp Ala Thr Thr Gly Val | | |
| 3155 | 3160 | 3165 |
| Ile Arg Leu Glu Lys Pro Leu Gln Val Arg Pro Gln Ala Pro Leu Glu | | |
| 3170 | 3175 | 3180 |
| Leu Thr Val Arg Ala Ser Asp Leu Gly Thr Pro Ile Pro Leu Ser Thr | | |
| 3185 | 3190 | 3195 3200 |
| Leu Gly Thr Val Thr Val Ser Val Val Gly Leu Glu Asp Tyr Leu Pro | | |
| 3205 | 3210 | 3215 |
| Val Phe Leu Asn Thr Glu His Ser Val Gln Val Pro Glu Asp Ala Pro | | |
| 3220 | 3225 | 3230 |
| Pro Gly Thr Glu Val Leu Gln Leu Ala Thr Leu Thr Arg Pro Gly Ala | | |
| 3235 | 3240 | 3245 |
| Glu Lys Thr Gly Tyr Arg Val Val Ser Gly Asn Glu Gln Gly Arg Phe | | |
| 3250 | 3255 | 3260 |
| Arg Leu Asp Ala Arg Thr Gly Ile Leu Tyr Val Asn Ala Ser Leu Asp | | |
| 3265 | 3270 | 3275 3280 |
| Phe Glu Thr Ser Pro Lys Tyr Phe Leu Ser Ile Glu Cys Ser Arg Lys | | |
| 3285 | 3290 | 3295 |
| Ser Ser Ser Ser Leu Ser Asp Val Thr Thr Val Met Val Asn Ile Thr | | |
| 3300 | 3305 | 3310 |
| Asp Val Asn Glu His Arg Pro Gln Phe Pro Gln Asp Pro Tyr Ser Thr | | |
| 3315 | 3320 | 3325 |
| Arg Val Leu Glu Asn Ala Leu Val Gly Asp Val Ile Leu Thr Val Ser | | |
| 3330 | 3335 | 3340 |
| Ala Thr Asp Glu Asp Gly Pro Leu Asn Ser Asp Ile Thr Tyr Ser Leu | | |

| | | | |
|---|------|------|------|
| 3345 | 3350 | 3355 | 3360 |
| Ile Gly Gly Asn Gln Leu Gly His Phe Thr Ile His Pro Lys Lys Gly | 3365 | 3370 | 3375 |
| Glu Leu Gln Val Ala Lys Ala Leu Asp Arg Glu Gln Ala Ser Ser Tyr | 3380 | 3385 | 3390 |
| Ser Leu Lys Leu Arg Ala Thr Asp Ser Gly Gln Pro Pro Leu His Glu | 3395 | 3400 | 3405 |
| Asp Thr Asp Ile Ala Ile Gln Val Ala Asp Val Asn Asp Asn Pro Pro | 3410 | 3415 | 3420 |
| Arg Phe Phe Gln Leu Asn Tyr Ser Thr Thr Val Gln Glu Asn Ser Pro | 3425 | 3430 | 3435 |
| Ile Gly Ser Lys Val Leu Gln Leu Ile Leu Ser Asp Pro Asp Ser Pro | 3445 | 3450 | 3455 |
| Glu Asn Gly Pro Pro Tyr Ser Phe Arg Ile Thr Lys Gly Asn Asn Gly | 3460 | 3465 | 3470 |
| Ser Ala Phe Arg Val Thr Pro Asp Gly Trp Leu Val Thr Ala Glu Gly | 3475 | 3480 | 3485 |
| Leu Ser Arg Arg Ala Gln Glu Trp Tyr Gln Leu Gln Ile Gln Ala Ser | 3490 | 3495 | 3500 |
| Asp Ser Gly Ile Pro Pro Leu Ser Ser Leu Thr Ser Val Arg Val His | 3505 | 3510 | 3515 |
| Val Thr Glu Gln Ser His Tyr Ala Pro Ser Ala Leu Pro Leu Glu Ile | 3525 | 3530 | 3535 |
| Phe Ile Thr Val Gly Glu Asp Glu Phe Gln Gly Gly Met Val Gly Lys | 3540 | 3545 | 3550 |
| Ile His Ala Thr Asp Arg Asp Pro Gln Asp Thr Leu Thr Tyr Ser Leu | 3555 | 3560 | 3565 |
| Ala Glu Glu Glu Thr Leu Gly Arg His Phe Ser Val Gly Ala Pro Asp | 3570 | 3575 | 3580 |
| Gly Lys Ile Ile Ala Ala Gln Gly Leu Pro Arg Gly His Tyr Ser Phe | 3585 | 3590 | 3595 |
| Asn Val Thr Val Ser Asp Gly Thr Phe Thr Thr Thr Ala Gly Val His | 3605 | 3610 | 3615 |
| Val Tyr Val Trp His Val Gly Gln Glu Ala Leu Gln Gln Ala Met Trp | 3620 | 3625 | 3630 |
| Met Gly Phe Tyr Gln Leu Thr Pro Glu Glu Leu Val Ser Asp His Trp | 3635 | 3640 | 3645 |
| Arg Asn Leu Gln Arg Phe Leu Ser His Lys Leu Asp Ile Lys Arg Ala | | | |

| | | |
|--|------|----------------|
| 3650 | 3655 | 3660 |
| Asn Ile His Leu Ala Ser Leu Gln Pro Ala Glu Ala Val Ala Gly Val | | |
| 3665 | 3670 | 3675 3680 |
| Asp Val Leu Leu Val Phe Glu Gly His Ser Gly Thr Phe Tyr Glu Phe | | |
| | 3685 | 3690 3695 |
| Gln Glu Leu Ala Ser Ile Ile Thr His Ser Ala Lys Glu Met Glu His | | |
| | 3700 | 3705 3710 |
| Ser Val Gly Val Gln, Met Arg Ser Ala Met Pro Met Val Pro Cys Gln | | |
| | 3715 | 3720 3725 |
| Gly Pro Thr Cys Gln Gly Gln Ile Cys His Asn Thr Val His Leu Asp | | |
| | 3730 | 3735 3740 |
| Pro Lys Val Gly Pro Thr Tyr Ser Thr Ala Arg Leu Ser Ile Leu Thr | | |
| | 3745 | 3750 3755 3760 |
| Pro Arg His His Leu Gln Arg Ser Cys Ser Cys Asn Gly Thr Ala Thr | | |
| | 3765 | 3770 3775 |
| Arg Phe Ser Gly Gln Ser Tyr Val Arg Tyr Arg Ala Pro Ala Ala Arg | | |
| | 3780 | 3785 3790 |
| Asn Trp His Ile His Phe Tyr Leu Lys Thr Leu Gln Pro Gln Ala Ile | | |
| | 3795 | 3800 3805 |
| Leu Leu Phe Thr Asn Glu Thr Ala Ser Val Ser Leu Lys Leu Ala Ser | | |
| | 3810 | 3815 3820 |
| Gly Val Pro Gln Leu Glu Tyr His Cys Leu Gly Gly Phe Tyr Gly Asn | | |
| | 3825 | 3830 3835 3840 |
| Leu Ser Ser Gln Arg His Val Asn Asp His Glu Trp His Ser Ile Leu | | |
| | 3845 | 3850 3855 |
| Val Glu Glu Met Asp Ala Ser Ile Arg Leu Met Val Asp Ser Met Gly | | |
| | 3860 | 3865 3870 |
| Asn Thr Ser Leu Val Val Pro Glu Asn Cys Arg Gly Leu Arg Pro Glu | | |
| | 3875 | 3880 3885 |
| Arg His Leu Leu Leu Gly Gly Leu Ile Leu Leu His Ser Ser Ser Asn | | |
| | 3890 | 3895 3900 |
| Val Ser Gln Gly Phe Glu Gly Cys Leu Asp Ala Val Val Val Asn Glu | | |
| | 3905 | 3910 3915 3920 |
| Glu Ala Leu Asp Leu Leu Ala Pro Gly Lys Thr Val Ala Gly Leu Leu | | |
| | 3925 | 3930 3935 |
| Glu Thr Gln Ala Leu Thr Gln Cys Cys Leu His Ser Asp Tyr Cys Ser | | |
| | 3940 | 3945 3950 |
| Gln Asn Thr Cys Leu Asn Gly Gly Lys Cys Ser Trp Thr His Gly Ala | | |

| 3955 | 3960 | 3965 |
|--|------|------|
| Gly Tyr Val Cys Lys Cys Pro Pro Gln Phe Ser Gly Lys His Cys Glu 3970 3975 3980 | | |
| Gln Gly Arg Glu Asn Cys Thr Phe Ala Pro Cys Leu Glu Gly Gly Thr 3985 3990 4000 | | |
| Cys Ile Leu Ser Pro Lys Gly Ala Ser Cys Asn Cys Pro His Pro Tyr 4005 4010 4015 | | |
| Thr Gly Asp Arg Cys Glu Met Glu Ala Arg Gly Cys Ser Glu Gly His 4020 4025 4030 | | |
| Cys Leu Val Thr Pro Glu Ile Gln Arg Gly Asp Trp Gly Gln Gln Glu 4035 4040 4045 | | |
| Leu Leu Ile Ile Thr Val Ala Val Ala Phe Ile Ile Ile Ser Thr Val 4050 4055 4060 | | |
| Gly Leu Leu Phe Tyr Cys Arg Arg Cys Lys Ser His Lys Pro Val Ala 4065 4070 4075 4080 | | |
| Met Glu Asp Pro Asp Leu Leu Ala Arg Ser Val Gly Val Asp Thr Gln 4085 4090 4095 | | |
| Ala Met Pro Ala Ile Glu Leu Asn Pro Leu Ser Ala Ser Ser Cys Asn 4100 4105 4110 | | |
| Asn Leu Asn Gln Pro Glu Pro Ser Lys Ala Ser Val Pro Asn Glu Leu 4115 4120 4125 | | |
| Val Thr Phe Gly Pro Asn Ser Lys Gln Arg Pro Val Val Cys Ser Val 4130 4135 4140 | | |
| Pro Pro Arg Leu Pro Pro Ala Ala Val Pro Ser His Ser Asp Asn Glu 4145 4150 4155 4160 | | |
| Pro Val Ile Lys Arg Thr Trp Ser Ser Glu Glu Met Val Tyr Pro Gly 4165 4170 4175 | | |
| Gly Ala Met Val Trp Pro Pro Thr Tyr Ser Arg Asn Glu Arg Trp Glu 4180 4185 4190 | | |
| Tyr Pro His Ser Glu Val Thr Gln Gly Pro Leu Pro Pro Ser Ala His 4195 4200 4205 | | |
| Arg His Ser Thr Pro Val Val Met Pro Glu Pro Asn Gly Leu Tyr Gly 4210 4215 4220 | | |
| Gly Phe Pro Phe Pro Leu Glu Met Glu Asn Lys Arg Ala Pro Leu Pro 4225 4230 4235 4240 | | |
| Pro Arg Tyr Ser Asn Gln Asn Leu Glu Asp Leu Met Pro Ser Arg Pro 4245 4250 4255 | | |
| Pro Ser Pro Arg Glu Arg Leu Val Ala Pro Cys Leu Asn Glu Tyr Thr | | |

| | | |
|---|------|------|
| 4260 | 4265 | 4270 |
| Ala Ile Ser Tyr Tyr His Ser Gln Phe Arg Gln Gly Gly Gly Gly Pro | | |
| 4275 | 4280 | 4285 |
| Cys Leu Ala Asp Gly Gly Tyr Lys Gly Val Gly Met Arg Leu Ser Arg | | |
| 4290 | 4295 | 4300 |
| Ala Gly Pro Ser Tyr Ala Val Cys Glu Val Glu Gly Ala Pro Leu Ala | | |
| 4305 | 4310 | 4315 |
| Gly Gln Gly Gln Pro Arg Val Pro Pro Asn Tyr Glu Gly Ser Asp Met | | |
| 4325 | 4330 | 4335 |
| Val Glu Ser Asp Tyr Gly Ser Cys Glu Glu Val Met Phe | | |
| 4340 | 4345 | |

<210> 19
 <211> 4349
 <212> PRT
 <213> Homo sapiens

<400> 19
 Met Thr Ile Ala Leu Leu Gly Phe Ala Ile Phe Leu Leu His Cys Ala
 1 5 10 15

Thr Cys Glu Lys Pro Leu Glu Gly Ile Leu Ser Ser Ser Ala Trp His
 20 25 30

Phe Thr His Ser His Tyr Asn Ala Thr Ile Tyr Glu Asn Ser Ser Pro
 35 40 45

Lys Thr Tyr Val Glu Ser Phe Glu Lys Met Gly Ile Tyr Leu Ala Glu
 50 55 60

Pro Gln Trp Ala Val Arg Tyr Arg Ile Ile Ser Gly Asp Val Ala Asn
 65 70 75 80

Val Phe Lys Thr Glu Glu Tyr Val Val Gly Asn Phe Cys Phe Leu Arg
 85 90 95

Ile Arg Thr Lys Ser Ser Asn Thr Ala Leu Leu Asn Arg Glu Val Arg
 100 105 110

Asp Ser Tyr Thr Leu Ile Ile Gln Ala Thr Glu Lys Thr Leu Glu Leu
 115 120 125

Glu Ala Leu Thr Arg Val Val Val His Ile Leu Asp Gln Asn Asp Leu
 130 135 140

Lys Pro Leu Phe Ser Pro Pro Ser Tyr Arg Val Thr Ile Ser Glu Asp
 145 150 155 160

Met Pro Leu Lys Ser Pro Ile Cys Lys Val Thr Ala Thr Asp Ala Asp
 165 170 175

Leu Gly Gln Asn Ala Glu Phe Tyr Tyr Ala Phe Asn Thr Arg Ser Glu
 180 185 190
 Met Phe Ala Ile His Pro Thr Ser Gly Val Val Thr Val Ala Gly Lys
 195 200 205
 Leu Asn Val Thr Trp Arg Gly Lys His Glu Leu Gln Val Leu Ala Val
 210 215 220
 Asp Arg Met Arg Lys Ile Ser Glu Gly Asn Gly Phe Gly Ser Leu Ala
 225 230 235 240
 Ala Leu Val Val His Val Glu Pro Ala Leu Arg Lys Pro Pro Ala Ile
 245 250 255
 Ala Ser Val Val Val Thr Pro Pro Asp Ser Asn Asp Gly Thr Thr Tyr
 260 265 270
 Ala Thr Val Leu Val Asp Ala Asn Ser Ser Gly Ala Glu Val Glu Ser
 275 280 285
 Val Glu Val Val Gly Gly Asp Pro Gly Lys His Phe Lys Ala Ile Lys
 290 295 300
 Ser Tyr Ala Arg Ser Asn Glu Phe Ser Leu Val Ser Val Lys Asp Ile
 305 310 315 320
 Asn Trp Met Glu Tyr Leu His Gly Phe Asn Leu Ser Leu Gln Ala Arg
 325 330 335
 Ser Gly Ser Gly Pro Tyr Phe Tyr Ser Gln Ile Arg Gly Phe His Leu
 340 345 350
 Pro Pro Ser Lys Leu Ser Ser Leu Lys Phe Glu Lys Ala Val Tyr Arg
 355 360 365
 Val Gln Leu Ser Glu Phe Ser Pro Pro Gly Ser Arg Val Val Met Val
 370 375 380
 Arg Val Thr Pro Ala Phe Pro Asn Leu Gln Tyr Val Leu Lys Pro Ser
 385 390 395 400
 Ser Glu Asn Val Gly Phe Lys Leu Asn Ala Arg Thr Gly Leu Ile Thr
 405 410 415
 Thr Thr Lys Leu Met Asp Phe His Asp Arg Ala His Tyr Gln Leu His
 420 425 430
 Ile Arg Thr Ser Pro Gly Gln Ala Ser Thr Val Val Val Ile Asp Ile
 435 440 445
 Val Asp Cys Asn Asn His Ala Pro Leu Phe Asn Arg Ser Ser Tyr Asp
 450 455 460
 Gly Thr Leu Asp Glu Asn Ile Pro Pro Gly Thr Ser Val Leu Ala Val
 465 470 475 480

Thr Ala Thr Asp Arg Asp His Gly Glu Asn Gly Tyr Val Thr Tyr Ser
 485 490 495
 Ile Ala Gly Pro Lys Ala Leu Pro Phe Ser Ile Asp Pro Tyr Leu Gly
 500 505 510
 Ile Ile Ser Thr Ser Lys Pro Met Asp Tyr Glu Leu Met Lys Arg Ile
 515 520 525
 Tyr Thr Phe Arg Val Arg Ala Ser Asp Trp Gly Ser Pro Phe Arg Arg
 530 535 540
 Glu Lys Glu Val Ser Ile Phe Leu Gln Leu Arg Asn Leu Asn Asp Asn
 545 550 555 560
 Gln Pro Met Phe Glu Glu Val Asn Cys Thr Gly Ser Ile Arg Gln Asp
 565 570 575
 Trp Pro Val Gly Lys Ser Ile Met Thr Met Ser Ala Ile Asp Val Asp
 580 585 590
 Glu Leu Gln Asn Leu Lys Tyr Glu Ile Val Ser Gly Asn Glu Leu Glu
 595 600 605
 Tyr Phe Asp Leu Asn His Phe Ser Gly Val Ile Ser Leu Lys Arg Pro
 610 615 620
 Phe Ile Asn Leu Thr Ala Gly Gln Pro Thr Ser Tyr Ser Leu Lys Ile
 625 630 635 640
 Thr Ala Ser Asp Gly Lys Asn Tyr Ala Ser Pro Thr Thr Leu Asn Ile
 645 650 655
 Thr Val Val Lys Asp Pro His Phe Glu Val Pro Val Thr Cys Asp Lys
 660 665 670
 Thr Gly Val Leu Thr Gln Phe Thr Lys Thr Ile Leu His Phe Ile Gly
 675 680 685
 Leu Gln Asn Gln Glu Ser Ser Asp Glu Glu Phe Thr Ser Leu Ser Thr
 690 695 700
 Tyr Gln Ile Asn His Tyr Thr Pro Gln Phe Glu Asp His Phe Pro Gln
 705 710 715 720
 Ser Ile Asp Val Leu Glu Ser Val Pro Ile Asn Thr Pro Leu Ala Arg
 725 730 735
 Leu Ala Ala Thr Asp Pro Asp Ala Gly Phe Asn Gly Lys Leu Val Tyr
 740 745 750
 Val Ile Ala Asp Gly Asn Glu Glu Gly Cys Phe Asp Ile Glu Leu Glu
 755 760 765
 Thr Gly Leu Leu Thr Val Ala Ala Pro Leu Asp Tyr Glu Ala Thr Asn
 770 775 780

Phe Tyr Ile Leu Asn Val Thr Val Tyr Asp Leu Gly Thr Pro Gln Lys
 785 790 795 800
 Ser Ser Trp Lys Leu Leu Thr Val Asn Val Lys Asp Trp Asn Asp Asn
 805 810 815
 Ala Pro Arg Phe Pro Pro Gly Gly Tyr Gln Leu Thr Ile Ser Glu Asp
 820 825 830
 Thr Glu Val Gly Thr Thr Ile Ala Glu Leu Thr Thr Lys Asp Ala Asp
 835 840 845
 Ser Glu Asp Asn Gly Arg Val Arg Tyr Thr Leu Leu Ser Pro Thr Glu
 850 855 860
 Lys Phe Ser Leu His Pro Leu Thr Gly Glu Leu Val Val Thr Gly His
 865 870 875 880
 Leu Asp Arg Glu Ser Glu Pro Arg Tyr Ile Leu Lys Val Glu Ala Arg
 885 890 895
 Asp Gln Pro Ser Lys Gly His Gln Leu Phe Ser Val Thr Asp Leu Ile
 900 905 910
 Ile Thr Leu Glu Asp Val Asn Asp Asn Ser Pro Gln Cys Ile Thr Glu
 915 920 925
 His Asn Arg Leu Lys Val Pro Glu Asp Leu Pro Pro Gly Thr Val Leu
 930 935 940
 Thr Phe Leu Asp Ala Ser Asp Pro Asp Leu Gly Pro Ala Gly Glu Val
 945 950 955 960
 Arg Tyr Val Leu Met Asp Gly Ala His Gly Thr Phe Arg Val Asp Leu
 965 970 975
 Met Thr Gly Ala Leu Ile Leu Glu Arg Glu Leu Asp Phe Glu Arg Arg
 980 985 990
 Ala Gly Tyr Asn Leu Ser Leu Trp Ala Ser Asp Gly Gly Arg Pro Leu
 995 1000 1005
 Ala Arg Arg Thr Leu Cys His Val Glu Val Ile Val Leu Asp Val Asn
 1010 1015 1020
 Glu Asn Leu His Pro Pro His Phe Ala Ser Phe Val His Gln Gly Gln
 1025 1030 1035 1040
 Val Gln Glu Asn Ser Pro Ser Gly Thr Gln Val Ile Val Val Ala Ala
 1045 1050 1055
 Gln Asp Asp Asp Ser Gly Leu Asp Gly Glu Leu Gln Tyr Phe Leu Arg
 1060 1065 1070
 Ala Gly Thr Gly Leu Ala Ala Phe Ser Ile Asn Gln Asp Thr Gly Met
 1075 1080 1085

Ile Gln Thr Leu Ala Pro Leu Asp Arg Glu Phe Ala Ser Tyr Tyr Trp
 1090 1095 1100

Leu Thr Val Leu Ala Val Asp Arg Gly Ser Val Pro Leu Ser Ser Val
 1105 1110 1115 1120

Thr Glu Val Tyr Ile Glu Val Thr Asp Ala Asn Asp Asn Pro Pro Gln
 1125 1130 1135

Met Ser Gln Ala Val Phe Tyr Pro Ser Ile Gln Glu Asp Ala Pro Val
 1140 1145 1150

Gly Thr Ser Val Leu Gln Leu Asp Ala Trp Asp Pro Asp Ser Ser Ser
 1155 1160 1165

Lys Gly Lys Leu Thr Phe Asn Ile Thr Ser Gly Asn Tyr Met Gly Phe
 1170 1175 1180

Phe Met Ile His Pro Val Thr Gly Leu Leu Ser Thr Ala Gln Gln Leu
 1185 1190 1195 1200

Asp Arg Glu Asn Lys Asp Glu His Ile Leu Glu Val Thr Val Leu Asp
 1205 1210 1215

Asn Gly Glu Pro Ser Leu Lys Ser Thr Ser Arg Val Val Val Gly Ile
 1220 1225 1230

Leu Asp Val Asn Asp Asn Pro Pro Ile Phe Ser His Lys Leu Phe Asn
 1235 1240 1245

Val Arg Leu Pro Glu Arg Leu Ser Pro Val Ser Pro Gly Pro Val Tyr
 1250 1255 1260

Arg Leu Val Ala Ser Asp Leu Asp Glu Gly Leu Asn Gly Arg Val Thr
 1265 1270 1275 1280

Tyr Ser Ile Glu Asp Ser Tyr Glu Glu Ala Phe Ser Ile Asp Leu Val
 1285 1290 1295

Thr Gly Val Val Ser Ser Asn Ser Thr Phe Thr Ala Gly Glu Tyr Asn
 1300 1305 1310

Ile Leu Thr Ile Lys Ala Thr Asp Ser Gly Gln Pro Pro Leu Ser Ala
 1315 1320 1325

Ser Val Arg Leu His Ile Glu Trp Ile Pro Trp Pro Arg Pro Ser Ser
 1330 1335 1340

Ile Pro Leu Ala Phe Asp Glu Thr Tyr Tyr Ser Phe Thr Val Met Glu
 1345 1350 1355 1360

Thr Asp Pro Val Asn His Met Val Gly Val Ile Ser Val Glu Gly Arg
 1365 1370 1375

Pro Gly Leu Phe Trp Phe Asn Ile Ser Gly Gly Asp Lys Asp Met Asp
 1380 1385 1390

Phe Asp Ile Glu Lys Thr Thr Gly Ser Ile Val Ile Ala Arg Pro Leu
 1395 1400 1405

Asp Thr Arg Arg Arg Ser Asn Tyr Asn Leu Thr Val Glu Val Thr Asp
 1410 1415 1420

Gly Ser Arg Thr Ile Ala Thr Gln Val His Ile Phe Met Ile Ala Asn
 1425 1430 1435 1440

Ile Asn His His Arg Pro Gln Phe Leu Glu Thr Arg Tyr Glu Val Arg
 1445 1450 1455

Val Pro Gln Asp Thr Val Pro Gly Val Glu Leu Leu Arg Val Gln Ala
 1460 1465 1470

Ile Asp Gln Asp Lys Gly Lys Ser Leu Ile Tyr Thr Ile His Gly Ser
 1475 1480 1485

Gln Asp Pro Gly Ser Ala Ser Leu Phe Gln Leu Asp Pro Ser Ser Gly
 1490 1495 1500

Val Leu Val Thr Val Gly Lys Leu Asp Leu Gly Ser Gly Pro Ser Gln
 1505 1510 1515 1520

His Thr Leu Thr Val Met Val Arg Asp Gln Glu Ile Pro Ile Lys Arg
 1525 1530 1535

Asn Phe Val Trp Val Thr Ile His Val Glu Asp Gly Asn Leu His Pro
 1540 1545 1550

Pro Arg Phe Thr Gln Leu His Tyr Glu Ala Ser Val Pro Asp Thr Ile
 1555 1560 1565

Ala Pro Gly Thr Glu Leu Leu Gln Val Arg Ala Met Asp Ala Asp Arg
 1570 1575 1580

Gly Val Asn Ala Glu Val His Tyr Ser Leu Leu Lys Gly Asn Ser Glu
 1585 1590 1595 1600

Gly Phe Phe Asn Ile Asn Ala Leu Leu Gly Ile Ile Thr Leu Ala Gln
 1605 1610 1615

Lys Leu Asp Gln Ala Asn His Ala Pro His Thr Leu Thr Val Lys Ala
 1620 1625 1630

Glu Asp Gln Gly Ser Pro Gln Trp His Asp Leu Ala Thr Val Ile Ile
 1635 1640 1645

His Val Tyr Pro Ser Asp Arg Ser Ala Pro Ile Phe Ser Lys Ser Glu
 1650 1655 1660

Tyr Phe Val Glu Ile Pro Glu Ser Ile Pro Val Gly Ser Pro Ile Leu
 1665 1670 1675 1680

Leu Val Ser Ala Met Ser Pro Ser Glu Val Thr Tyr Glu Leu Arg Glu
 1685 1690 1695

Gly Asn Lys Asp Gly Val Phe Ser Met Asn Ser Tyr Ser Gly Leu Ile
 1700 1705 1710
 Ser Thr Gln Lys Lys Leu Asp His Glu Lys Ile Ser Ser Tyr Gln Leu
 1715 1720 1725
 Lys Ile Arg Gly Ser Asn Met Ala Gly Ala Phe Thr Asp Val Met Val
 1730 1735 1740
 Val Val Asp Ile Ile Asp Glu Asn Asp Asn Ala Pro Met Phe Leu Lys
 1745 1750 1755 1760
 Ser Thr Phe Val Gly Gln Ile Ser Glu Ala Ala Pro Leu Tyr Ser Met
 1765 1770 1775
 Ile Met Asp Lys Asn Asn Asn Pro Phe Val Ile His Ala Ser Asp Ser
 1780 1785 1790
 Asp Lys Glu Ala Asn Ser Leu Leu Val Tyr Lys Ile Leu Glu Pro Glu
 1795 1800 1805
 Ala Leu Lys Phe Phe Lys Ile Asp Pro Ser Met Gly Thr Leu Thr Ile
 1810 1815 1820
 Val Ser Glu Met Asp Tyr Glu Ser Met Pro Ser Phe Gln Phe Cys Val
 1825 1830 1835 1840
 Tyr Val His Asp Gln Gly Ser Pro Val Leu Phe Ala Pro Arg Pro Ala
 1845 1850 1855
 Gln Val Ile Ile His Val Arg Asp Val Asn Asp Ser Pro Pro Arg Phe
 1860 1865 1870
 Ser Glu Gln Ile Tyr Glu Val Ala Ile Val Gly Pro Ile His Pro Gly
 1875 1880 1885
 Met Glu Leu Leu Met Val Arg Ala Ser Asp Glu Asp Ser Glu Val Asn
 1890 1895 1900
 Tyr Ser Ile Lys Thr Gly Asn Ala Asp Glu Ala Val Thr Ile His Pro
 1905 1910 1915 1920
 Val Thr Gly Ser Ile Ser Val Leu Asn Pro Ala Phe Leu Gly Leu Ser
 1925 1930 1935
 Arg Lys Leu Thr Ile Arg Ala Ser Asp Gly Leu Tyr Gln Asp Thr Ala
 1940 1945 1950
 Leu Val Lys Ile Ser Leu Thr Gln Val Leu Asp Lys Ser Leu Gln Phe
 1955 1960 1965
 Asp Gln Asp Val Tyr Trp Ala Ala Val Lys Glu Asn Leu Gln Asp Arg
 1970 1975 1980
 Lys Ala Leu Val Ile Leu Gly Ala Gln Gly Asn His Leu Asn Asp Thr
 1985 1990 1995 2000

Leu Ser Tyr Phe Leu Leu Asn Gly Thr Asp Met Phe His Met Val Gln
 2005 2010 2015
 Ser Ala Gly Val Leu Gln Thr Arg Gly Val Ala Phe Asp Arg Glu Gln
 2020 2025 2030
 Gln Asp Thr His Glu Leu Ala Val Glu Val Arg Asp Asn Arg Thr Pro
 2035 2040 2045
 Gln Arg Val Ala Gln Gly Leu Val Arg Val Ser Ile Glu Asp Val Asn
 2050 2055 2060
 Asp Asn Pro Pro Lys Phe Lys His Leu Pro Tyr Tyr Thr Ile Ile Gln
 2065 2070 2075 2080
 Asp Gly Thr Glu Pro Gly Asp Val Leu Phe Gln Val Ser Ala Thr Asp
 2085 2090 2095
 Glu Asp Leu Gly Thr Asn Gly Ala Val Thr Tyr Glu Phe Ala Glu Asp
 2100 2105 2110
 Tyr Thr Tyr Phe Arg Ile Asp Pro Tyr Leu Gly Asp Ile Ser Leu Lys
 2115 2120 2125
 Lys Pro Phe Asp Tyr Gln Ala Leu Asn Lys Tyr His Leu Lys Val Ile
 2130 2135 2140
 Ala Arg Asp Gly Gly Thr Pro Ser Leu Gln Ser Glu Glu Glu Val Leu
 2145 2150 2155 2160
 Val Thr Val Arg Asn Lys Ser Asn Pro Leu Phe Gln Ser Pro Tyr Tyr
 2165 2170 2175
 Lys Val Arg Val Pro Glu Asn Ile Thr Leu Tyr Thr Pro Ile Leu His
 2180 2185 2190
 Thr Gln Ala Arg Ser Pro Glu Gly Leu Arg Leu Ile Tyr Asn Ile Val
 2195 2200 2205
 Glu Glu Glu Pro Leu Met Leu Phe Thr Thr Asp Phe Lys Thr Gly Val
 2210 2215 2220
 Leu Thr Val Thr Gly Pro Leu Asp Tyr Glu Ser Lys Thr Lys His Val
 2225 2230 2235 2240
 Phe Thr Val Arg Ala Thr Asp Thr Ala Leu Gly Ser Phe Ser Glu Ala
 2245 2250 2255
 Thr Val Glu Val Leu Val Glu Asp Val Asn Asp Asn Pro Pro Thr Phe
 2260 2265 2270
 Ser Gln Leu Val Tyr Thr Thr Ser Ile Ser Glu Gly Leu Pro Ala Gln
 2275 2280 2285
 Thr Pro Val Ile Gln Leu Leu Ala Ser Asp Gln Asp Ser Gly Arg Asn
 2290 2295 2300

Arg Asp Val Ser Tyr Gln Ile Val Glu Asp Gly Ser Asp Val Ser Lys
 2305 2310 2315 2320

Phe Phe Gln Ile Asn Gly Ser Thr Gly Glu Met Ser Thr Val Gln Glu
 2325 2330 2335

Leu Asp Tyr Glu Ala Gln Gln His Phe His Val Lys Val Arg Ala Met
 2340 2345 2350

Asp Lys Gly Asp Pro Pro Leu Thr Gly Glu Thr Leu Val Val Val Asn
 2355 2360 2365

Val Ser Asp Ile Asn Asp Asn Pro Pro Glu Phe Arg Gln Pro Gln Tyr
 2370 2375 2380

Glu Ala Asn Val Ser Glu Leu Ala Thr Cys Gly His Leu Val Leu Lys
 2385 2390 2395 2400

Val Gln Ala Ile Asp Pro Asp Ser Arg Asp Thr Ser Arg Leu Glu Tyr
 2405 2410 2415

Leu Ile Leu Ser Gly Asn Gln Asp Arg His Phe Phe Ile Asn Ser Ser
 2420 2425 2430

Ser Gly Ile Ile Ser Met Phe Asn Leu Cys Lys Lys His Leu Asp Ser
 2435 2440 2445

Ser Tyr Asn Leu Arg Val Gly Ala Ser Asp Gly Val Phe Arg Ala Thr
 2450 2455 2460

Val Pro Val Tyr Ile Asn Thr Thr Asn Ala Asn Lys Tyr Ser Pro Glu
 2465 2470 2475 2480

Phe Gln Gln His Leu Tyr Glu Ala Glu Leu Ala Glu Asn Ala Met Val
 2485 2490 2495

Gly Thr Lys Val Ile Asp Leu Leu Ala Ile Asp Lys Asp Ser Gly Pro
 2500 2505 2510

Tyr Gly Thr Ile Asp Tyr Thr Ile Ile Asn Lys Leu Ala Ser Glu Lys
 2515 2520 2525

Phe Ser Ile Asn Pro Asn Gly Gln Ile Ala Thr Leu Gln Lys Leu Asp
 2530 2535 2540

Arg Glu Asn Ser Thr Glu Arg Val Ile Ala Ile Lys Val Met Ala Arg
 2545 2550 2555 2560

Asp Gly Gly Gly Arg Val Ala Phe Cys Thr Val Lys Ile Ile Leu Thr
 2565 2570 2575

Asp Glu Asn Asp Asn Pro Pro Gln Phe Lys Ala Ser Glu Tyr Thr Val
 2580 2585 2590

Ser Ile Gln Ser Asn Val Ser Lys Asp Ser Pro Val Ile Gln Val Leu
 2595 2600 2605

Ala Tyr Asp Ala Asp Glu Gly Gln Asn Ala Asp Val Thr Tyr Ser Val
 2610 2615 2620

Asn Pro Glu Asp Leu Val Lys Asp Val Ile Glu Ile Asn Pro Val Thr
 2625 2630 2635 2640

Gly Val Val Lys Val Lys Asp Ser Leu Val Gly Leu Glu Asn Gln Thr
 2645 2650 2655

Leu Asp Phe Phe Ile Lys Ala Gln Asp Gly Gly Pro Pro His Trp Asn
 2660 2665 2670

Ser Leu Val Pro Val Arg Leu Gln Val Val Pro Lys Lys Val Ser Leu
 2675 2680 2685

Pro Lys Phe Ser Glu Pro Leu Tyr Thr Phe Ser Ala Pro Glu Asp Leu
 2690 2695 2700

Pro Glu Gly Ser Glu Ile Gly Ile Val Lys Ala Val Ala Ala Gln Asp
 2705 2710 2715 2720

Pro Val Ile Tyr Ser Leu Val Arg Gly Thr Thr Pro Glu Ser Asn Lys
 2725 2730 2735

Asp Gly Val Phe Ser Leu Asp Pro Asp Thr Gly Val Ile Lys Val Arg
 2740 2745 2750

Lys Pro Met Asp His Glu Ser Thr Lys Leu Tyr Gln Ile Asp Val Met
 2755 2760 2765

Ala His Cys Leu Gln Asn Thr Asp Val Val Ser Leu Val Ser Val Asn
 2770 2775 2780

Ile Gln Val Gly Asp Val Asn Asp Asn Arg Pro Val Phe Glu Ala Asp
 2785 2790 2795 2800

Pro Tyr Lys Ala Val Leu Thr Glu Asn Met Pro Val Gly Thr Ser Val
 2805 2810 2815

Ile Gln Val Thr Ala Ile Asp Lys Asp Thr Gly Arg Asp Gly Gln Val
 2820 2825 2830

Ser Tyr Arg Leu Ser Ala Asp Pro Gly Ser Asn Val His Glu Leu Phe
 2835 2840 2845

Ala Ile Asp Ser Glu Ser Gly Trp Ile Thr Thr Leu Gln Glu Leu Asp
 2850 2855 2860

Cys Glu Thr Cys Gln Thr Tyr His Phe His Val Val Ala Tyr Asp His
 2865 2870 2875 2880

Gly Gln Thr Ile Gln Leu Ser Ser Gln Ala Leu Val Gln Val Ser Ile
 2885 2890 2895

Thr Asp Glu Asn Asp Asn Ala Pro Arg Phe Ala Ser Glu Glu Tyr Arg
 2900 2905 2910

Gly Ser Val Val Glu Asn Ser Glu Pro Gly Glu Leu Val Ala Thr Leu
 2915 2920 2925
 Lys Thr Leu Asp Ala Asp Ile Ser Glu Gln Asn Arg Gln Val Thr Cys
 2930 2935 2940
 Tyr Ile Thr Glu Gly Asp Pro Leu Gly Gln Phe Gly Ile Ser Gln Val
 2945 2950 2955 2960
 Gly Asp Glu Trp Arg Ile Ser Ser Arg Lys Thr Leu Asp Arg Glu His
 2965 2970 2975
 Thr Ala Lys Tyr Leu Leu Arg Val Thr Ala Ser Asp Gly Lys Phe Gln
 2980 2985 2990
 Ala Ser Val Thr Val Glu Ile Phe Val Leu Asp Val Asn Asp Asn Ser
 2995 3000 3005
 Pro Gln Cys Ser Gln Leu Leu Tyr Thr Gly Lys Val His Glu Asp Val
 3010 3015 3020
 Phe Pro Gly His Phe Ile Leu Lys Val Ser Ala Thr Asp Leu Asp Thr
 3025 3030 3035 3040
 Asp Thr Asn Ala Gln Ile Thr Tyr Ser Leu His Gly Pro Gly Ala His
 3045 3050 3055
 Glu Phe Lys Leu Asp Pro His Thr Gly Glu Leu Thr Thr Leu Thr Ala
 3060 3065 3070
 Leu Asp Arg Glu Arg Lys Asp Val Phe Asn Leu Val Ala Lys Ala Thr
 3075 3080 3085
 Asp Gly Gly Gly Arg Ser Cys Gln Ala Asp Ile Thr Leu His Val Glu
 3090 3095 3100
 Asp Val Asn Asp Asn Ala Pro Arg Phe Phe Pro Ser His Cys Ala Val
 3105 3110 3115 3120
 Ala Val Phe Asp Asn Thr Thr Val Lys Thr Pro Val Ala Val Val Phe
 3125 3130 3135
 Ala Arg Asp Pro Asp Gln Gly Ala Asn Ala Gln Val Val Tyr Ser Leu
 3140 3145 3150
 Pro Asp Ser Ala Glu Gly His Phe Ser Ile Asp Ala Thr Thr Gly Val
 3155 3160 3165
 Ile Arg Leu Glu Lys Pro Leu Gln Val Arg Pro Gln Ala Pro Leu Glu
 3170 3175 3180
 Leu Thr Val Arg Ala Ser Asp Leu Gly Thr Pro Ile Pro Leu Ser Thr
 3185 3190 3195 3200
 Leu Gly Thr Val Thr Val Ser Val Val Gly Leu Glu Asp Tyr Leu Pro
 3205 3210 3215

Val Phe Leu Asn Thr Glu His Ser Val Gln Val Pro Glu Asp Ala Pro
 3220 3225 3230
 Pro Gly Thr Glu Val Leu Gln Leu Ala Thr Leu Thr Arg Pro Gly Ala
 3235 3240 3245
 Glu Lys Thr Gly Tyr Arg Val Val Ser Gly Asn Glu Gln Gly Arg Phe
 3250 3255 3260
 Arg Leu Asp Ala Arg Thr Gly Ile Leu Tyr Val Asn Ala Ser Leu Asp
 3265 3270 3275 3280
 Phe Glu Thr Ser Pro Lys Tyr Phe Leu Ser Ile Glu Cys Ser Arg Lys
 3285 3290 3295
 Ser Ser Ser Ser Leu Ser Asp Val Thr Thr Val Met Val Asn Ile Thr
 3300 3305 3310
 Asp Val Asn Glu His Arg Pro Gln Phe Pro Gln Asp Pro Tyr Ser Thr
 3315 3320 3325
 Arg Val Leu Glu Asn Ala Leu Val Gly Asp Val Ile Leu Thr Val Ser
 3330 3335 3340
 Ala Thr Asp Glu Asp Gly Pro Leu Asn Ser Asp Ile Thr Tyr Ser Leu
 3345 3350 3355 3360
 Ile Gly Gly Asn Gln Leu Gly His Phe Thr Ile His Pro Lys Lys Gly
 3365 3370 3375
 Glu Leu Gln Val Ala Lys Ala Leu Asp Arg Glu Gln Ala Ser Ser Tyr
 3380 3385 3390
 Ser Leu Lys Leu Arg Ala Thr Asp Ser Gly Gln Pro Pro Leu His Glu
 3395 3400 3405
 Asp Thr Asp Ile Ala Ile Gln Val Ala Asp Val Asn Asp Asn Pro Pro
 3410 3415 3420
 Arg Phe Phe Gln Leu Asn Tyr Ser Thr Thr Val Gln Glu Asn Ser Pro
 3425 3430 3435 3440
 Ile Gly Ser Lys Val Leu Gln Leu Ile Leu Ser Asp Pro Asp Ser Pro
 3445 3450 3455
 Glu Asn Gly Pro Pro Tyr Ser Phe Arg Ile Thr Lys Gly Asn Asn Gly
 3460 3465 3470
 Ser Ala Phe Arg Val Thr Pro Asp Gly Trp Leu Val Thr Ala Glu Gly
 3475 3480 3485
 Leu Ser Arg Arg Ala Gln Glu Trp Tyr Gln Leu Gln Ile Gln Ala Ser
 3490 3495 3500
 Asp Ser Gly Ile Pro Pro Leu Ser Ser Leu Thr Ser Val Arg Val His
 3505 3510 3515 3520

Val Thr Glu Gln Ser His Tyr Ala Pro Ser Ala Leu Pro Leu Glu Ile
 3525 3530 3535
 Phe Ile Thr Val Gly Glu Asp Glu Phe Gln Gly Gly Met Val Gly Lys
 3540 3545 3550
 Ile His Ala Thr Asp Arg Asp Pro Gln Asp Thr Leu Thr Tyr Ser Leu
 3555 3560 3565
 Ala Glu Glu Glu Thr Leu Gly Arg His Phe Ser Val Gly Ala Pro Asp
 3570 3575 3580
 Gly Lys Ile Ile Ala Ala Gln Gly Leu Pro Arg Gly His Tyr Ser Phe
 3585 3590 3595 3600
 Asn Val Thr Val Ser Asp Gly Thr Phe Thr Thr Thr Ala Gly Val His
 3605 3610 3615
 Val Tyr Val Trp His Val Gly Gln Glu Ala Leu Gln Gln Ala Met Trp
 3620 3625 3630
 Met Gly Phe Tyr Gln Leu Thr Pro Glu Glu Leu Val Ser Asp His Trp
 3635 3640 3645
 Arg Asn Leu Gln Arg Phe Leu Ser His Lys Leu Asp Ile Lys Arg Ala
 3650 3655 3660
 Asn Ile His Leu Ala Ser Leu Gln Pro Ala Glu Ala Val Ala Gly Val
 3665 3670 3675 3680
 Asp Val Leu Leu Val Phe Glu Gly His Ser Gly Thr Phe Tyr Glu Phe
 3685 3690 3695
 Gln Glu Leu Ala Ser Ile Ile Thr His Ser Ala Lys Glu Met Glu His
 3700 3705 3710
 Ser Val Gly Val Gln Met Arg Ser Ala Met Pro Met Val Pro Cys Gln
 3715 3720 3725
 Gly Pro Thr Cys Gln Gly Gln Ile Cys His Asn Thr Val His Leu Asp
 3730 3735 3740
 Pro Lys Val Gly Pro Thr Tyr Ser Thr Ala Arg Leu Ser Ile Leu Thr
 3745 3750 3755 3760
 Pro Arg His His Leu Gln Arg Ser Cys Ser Cys Asn Gly Thr Ala Thr
 3765 3770 3775
 Arg Phe Ser Gly Gln Ser Tyr Val Arg Tyr Arg Ala Pro Ala Ala Arg
 3780 3785 3790
 Asn Trp His Ile His Phe Tyr Leu Lys Thr Leu Gln Pro Gln Ala Ile
 3795 3800 3805
 Leu Leu Phe Thr Asn Glu Thr Ala Ser Val Ser Leu Lys Leu Ala Ser
 3810 3815 3820

Gly Val Pro Gln Leu Glu Tyr His Cys Leu Gly Gly Phe Tyr Gly Asn
 3825 3830 3835 3840

Leu Ser Ser Gln Arg His Val Asn Asp His Glu Trp His Ser Ile Leu
 3845 3850 3855

Val Glu Glu Met Asp Ala Ser Ile Arg Leu Met Val Asp Ser Met Gly
 3860 3865 3870

Asn Thr Ser Leu Val Val Pro Glu Asn Cys Arg Gly Leu Arg Pro Glu
 3875 3880 3885

Arg His Leu Leu Leu Gly Gly Leu Ile Leu Leu His Ser Ser Ser Asn
 3890 3895 3900

Val Ser Gln Gly Phe Glu Gly Cys Leu Asp Ala Val Val Val Asn Glu
 3905 3910 3915 3920

Glu Ala Leu Asp Leu Leu Ala Pro Gly Lys Thr Val Ala Gly Leu Leu
 3925 3930 3935

Glu Thr Gln Ala Leu Thr Gln Cys Cys Leu His Ser Asp Tyr Cys Ser
 3940 3945 3950

Gln Asn Thr Cys Leu Asn Gly Gly Lys Cys Ser Trp Thr His Gly Ala
 3955 3960 3965

Gly Tyr Val Cys Lys Cys Pro Pro Gln Phe Ser Gly Lys His Cys Glu
 3970 3975 3980

Gln Gly Arg Glu Asn Cys Thr Phe Ala Pro Cys Leu Glu Gly Gly Thr
 3985 3990 3995 4000

Cys Ile Leu Ser Pro Lys Gly Ala Ser Cys Asn Cys Pro His Pro Tyr
 4005 4010 4015

Thr Gly Asp Arg Cys Glu Met Glu Ala Arg Gly Cys Ser Glu Gly His
 4020 4025 4030

Cys Leu Val Thr Pro Glu Ile Gln Arg Gly Asp Trp Gly Gln Gln Glu
 4035 4040 4045

Leu Leu Ile Ile Thr Val Ala Val Ala Phe Ile Ile Ile Ser Thr Val
 4050 4055 4060

Gly Leu Leu Phe Tyr Cys Arg Arg Cys Lys Ser His Lys Pro Val Ala
 4065 4070 4075 4080

Met Glu Asp Pro Asp Leu Leu Ala Arg Ser Val Gly Val Asp Thr Gln
 4085 4090 4095

Ala Met Pro Ala Ile Glu Leu Asn Pro Leu Ser Ala Ser Ser Cys Asn
 4100 4105 4110

Asn Leu Asn Gln Pro Glu Pro Ser Lys Ala Ser Val Pro Asn Glu Leu
 4115 4120 4125

Val Thr Phe Gly Pro Asn Ser Lys Gln Arg Pro Val Val Cys Ser Val
 4130 4135 4140
 Pro Pro Arg Leu Pro Pro Ala Ala Val Pro Ser His Ser Asp Asn Glu
 4145 4150 4155 4160
 Pro Val Ile Lys Arg Thr Trp Ser Ser Glu Glu Met Val Tyr Pro Gly
 4165 4170 4175
 Gly Ala Met Val Trp Pro Pro Thr Tyr Ser Arg Asn Glu Arg Trp Glu
 4180 4185 4190
 Tyr Pro His Ser Glu Val Thr Gln Gly Pro Leu Pro Pro Ser Ala His
 4195 4200 4205
 Arg His Ser Thr Pro Val Val Met Pro Glu Pro Asn Gly Leu Tyr Gly
 4210 4215 4220
 Gly Phe Pro Phe Pro Leu Glu Met Glu Asn Lys Arg Ala Pro Leu Pro
 4225 4230 4235 4240
 Pro Arg Tyr Ser Asn Gln Asn Leu Glu Asp Leu Met Pro Ser Arg Pro
 4245 4250 4255
 Pro Ser Pro Arg Glu Arg Leu Val Ala Pro Cys Leu Asn Glu Tyr Thr
 4260 4265 4270
 Ala Ile Ser Tyr Tyr His Ser Gln Phe Arg Gln Gly Gly Gly Gly Pro
 4275 4280 4285
 Cys Leu Ala Asp Gly Gly Tyr Lys Gly Val Gly Met Arg Leu Ser Arg
 4290 4295 4300
 Ala Gly Pro Ser Tyr Ala Val Cys Glu Val Glu Gly Ala Pro Leu Ala
 4305 4310 4315 4320
 Gly Gln Gly Gln Pro Arg Val Pro Pro Asn Tyr Glu Gly Ser Asp Met
 4325 4330 4335
 Val Glu Ser Asp Tyr Gly Ser Cys Glu Glu Val Met Phe
 4340 4345

<210> 20
 <211> 4351
 <212> PRT
 <213> Rattus norvegicus

<400> 20
 Met Thr Leu Val Leu Leu Gly Leu Ala Ile Leu Leu Leu His Arg Ala
 1 5 10 15
 Ala Cys Glu Lys Ser Leu Glu Glu Thr Ile Pro Pro Leu Ser Trp Arg
 20 25 30
 Phe Thr His Ser Leu Tyr Asn Ala Thr Ile Tyr Glu Asn Ser Ala Pro
 35 40 45

Lys Thr Tyr Val Glu Ser Pro Val Lys Met Gly Met Tyr Leu Ala Glu
 50 55 60

Pro His Trp Val Val Lys Tyr Arg Ile Ile Ser Gly Asp Ala Ala Gly
 65 70 75 80

Val Phe Lys Thr Glu Glu His Val Val Gly Asn Phe Cys Phe Leu Arg
 85 90 95

Ile Arg Thr Lys Ser Ser Asn Thr Ala Leu Leu Asn Arg Glu Val Arg
 100 105 110

Asp Ser Tyr Thr Leu Ile Val Gln Ala Ser Asp Lys Ser Leu Glu Phe
 115 120 125

Glu Ala Leu Thr Gln Val Val Val His Ile Leu Asp Gln Asn Asp Leu
 130 135 140

Lys Pro Leu Phe Ser Pro Pro Ser Tyr Arg Val Thr Ile Ser Glu Asp
 145 150 155 160

Arg Pro Leu Lys Ser Pro Ile Cys Lys Val Thr Ala Thr Asp Ala Asp
 165 170 175

Leu Gly Gln Asn Ala Glu Phe Tyr Tyr Ala Phe Asn Ala Arg Ser Glu
 180 185 190

Val Phe Ala Ile His Pro Thr Ser Gly Val Val Thr Val Ala Gly Lys
 195 200 205

Leu Asn Val Thr Arg Arg Gly Lys Tyr Glu Leu Gln Val Leu Ala Val
 210 215 220

Asp Arg Met Arg Lys Ile Ser Glu Gly Asn Gly Phe Gly Asn Leu Ala
 225 230 235 240

Ser Leu Val Ile Arg Val Glu Pro Val His Arg Lys Pro Pro Ala Ile
 245 250 255

Asn Leu Val Val Leu Asn Pro Pro Glu Gly Asp Glu Gly Asp Ile Tyr
 260 265 270

Ala Ile Val Thr Val Asp Thr Asn Gly Ser Gly Ala Glu Val Asp Ser
 275 280 285

Leu Glu Val Val Gly Gly Asp Pro Gly Lys Tyr Phe Lys Val Leu Arg
 290 295 300

Ser Tyr Ala Gln Gly Asn Glu Phe Asn Leu Val Ala Val Arg Asp Ile
 305 310 315 320

Asn Trp Ala Glu His Pro His Gly Phe Asn Ile Ser Leu Gln Thr His
 325 330 335

Ser Trp Ser Arg Phe Pro Pro His Ser Ile Ile Arg Ala Phe His Leu
 340 345 350

Pro Ser Trp Lys Leu Ala Asn Leu Arg Phe Glu Lys Ala Val Tyr Arg
 355 360 365
 Val Lys Leu Ser Glu Phe Ser Pro Pro Gly Ser Arg Val Ala Leu Val
 370 375 380
 Lys Val Thr Thr Ala Leu Pro Asn Leu Arg Tyr Ser Leu Lys Pro Ser
 385 390 395 400
 Ser Arg Asn Thr Ala Phe Lys Leu Asn Ala Arg Thr Gly Leu Ile Thr
 405 410 415
 Thr Thr Lys Leu Val Asp Phe His Glu Gln Asn Gln Tyr Gln Leu His
 420 425 430
 Val Lys Thr Ser Leu Gly Gln Ala Thr Thr Thr Val Ile Ile Asp Ile
 435 440 445
 Val Asp Cys Asn Asn His Ala Pro Val Phe Asn Arg Ser Ser Tyr Glu
 450 455 460
 Gly Thr Leu Asp Glu Asn Ile Pro Pro Gly Thr Ser Val Leu Thr Val
 465 470 475 480
 Thr Ala Thr Asp Gln Asp His Gly Asp Asn Gly His Ile Thr Tyr Ser
 485 490 495
 Ile Ala Gly Pro Lys Ala Val Pro Phe Ser Ile Asp Pro Leu Leu Gly
 500 505 510
 Val Ile Ser Thr Thr Lys Pro Met Asp Tyr Glu Leu Met Lys Arg Ile
 515 520 525
 Tyr Thr Phe Arg Val Arg Ala Ser Asp Trp Gly Ser Pro Phe Arg Gln
 530 535 540
 Glu Lys Glu Val Ser Val Ser Leu Arg Leu Lys Asn Leu Asn Asp Asn
 545 550 555 560
 Gln Pro Met Phe Glu Glu Val Asn Cys Thr Val Ser Leu Arg Gln Asp
 565 570 575
 Val Pro Val Gly Lys Ser Ile Met Ala Val Ser Ala Ile Asp Met Asp
 580 585 590
 Glu Leu Gln Asn Leu Lys Tyr Glu Ile Val Ser Gly Asn Glu Gln Asp
 595 600 605
 Tyr Phe His Leu Asn His Phe Ser Gly Val Ile Ser Leu Lys Arg Ser
 610 615 620
 Phe Met Asn Leu Thr Ala Val Arg Pro Thr Ile Tyr Ser Leu Lys Ile
 625 630 635 640
 Thr Ala Ser Asp Gly Lys Asn Tyr Ala Ser Pro Thr Thr Leu Lys Val
 645 650 655

Thr Val Val Lys Asp Pro His Ser Glu Val Pro Val Gln Cys Asp Lys
 660 665 670

Thr Gly Val Leu Thr His Ile Thr Lys Thr Ile Leu Gln Ser Ala Gly
 675 680 685

Leu Gln Ser Gln Glu Leu Gly Glu Glu Glu Phe Thr Ser Leu Ser Asn
 690 695 700

Tyr Gln Ile Asn His His Ser Pro Gln Phe Glu Asp His Phe Pro Gln
 705 710 715 720

Ser Ile Asp Ile Leu Glu Gln Val Pro Ile Asn Thr Pro Leu Ala Arg
 725 730 735

Leu Ala Ala Thr Asp Pro Asp Thr Gly Phe His Gly Lys Leu Val Tyr
 740 745 750

Val Ile Ser Asp Gly Asn Glu Glu Gly Cys Phe Asp Ile Glu Leu Glu
 755 760 765

Thr Gly Leu Leu Met Val Ala Ala Ala Leu Asp Tyr Glu Thr Thr Ser
 770 775 780

Phe Tyr Val Leu Asn Val Thr Val Tyr Asp Leu Gly Thr Pro Pro Lys
 785 790 795 800

Ser Ser Trp Lys Leu Leu Thr Val Thr Val Lys Asp Trp Asn Asp Asn
 805 810 815

Pro Pro Arg Phe Pro Pro Gly Gly Tyr Gln Leu Thr Ile Ser Glu Asp
 820 825 830

Thr Glu Val Gly Thr Thr Ile Ala Glu Leu Lys Thr Glu Asp Ala Asp
 835 840 845

Ser Glu Asp Asn Arg Arg Val Arg Tyr Thr Leu Leu Thr Pro Thr Glu
 850 855 860

Lys Phe Ser Leu His Pro Phe Thr Gly Glu Leu Val Val Thr Gly His
 865 870 875 880

Leu Asp Arg Glu Ser Glu Ser Gln Tyr Ile Leu Lys Ala Glu Ala Arg
 885 890 895

Asp Gln Pro Thr Lys Gly His Gln Leu Phe Ser Val Thr Asp Leu Ile
 900 905 910

Val Thr Leu Glu Asp Ile Asn Asp Asn Pro Pro Gln Cys Ile Thr Glu
 915 920 925

His Arg Arg Leu Lys Val Pro Glu Asp Met Pro Leu Gly Thr Val Leu
 930 935 940

Thr Phe Leu Asp Ala Ser Asp Pro Asp Leu Gly Pro Ala Gly Glu Val
 945 950 955 960

Lys Tyr Ile Leu Val Glu Asp Ala His Gly Thr Phe Gln Val His Pro
 965 970 975
 Met Thr Gly Ala Leu Ser Leu Glu Lys Glu Leu Asp Phe Glu Arg Arg
 980 985 990
 Ala Gly Tyr Asn Leu Ser Phe Trp Ala Ser Asp Ser Gly Lys Pro Leu
 995 1000 1005
 Ser Arg Arg Thr Leu Cys His Val Glu Val Leu Val Met Asp Val Asn
 1010 1015 1020
 Glu Asn Leu His Ser Pro His Phe Ser Ser Phe Val Tyr Gln Gly Gln
 1025 1030 1035 1040
 Val Gln Glu Asn Ser Pro Ala Gly Thr Pro Val Met Val Val Thr Ala
 1045 1050 1055
 Gln Asp Asp Asp Ser Gly Leu Asp Gly Glu Leu Gln Tyr Phe Leu Arg
 1060 1065 1070
 Ala Gly Thr Gly Leu Glu Thr Phe Ser Ile Asn Gln Asp Thr Gly Met
 1075 1080 1085
 Leu Glu Thr Leu Ala Pro Leu Asp Arg Glu Phe Thr Pro Tyr Tyr Trp
 1090 1095 1100
 Leu Thr Val Leu Ala Val Asp Arg Gly Ser Val Pro Leu Ser Ala Val
 1105 1110 1115 1120
 Thr Glu Val Tyr Ile Glu Val Thr Asp Ile Asn Asp Asn Ile Pro Ser
 1125 1130 1135
 Met Ser Arg Pro Val Phe Tyr Pro Ser Val Leu Glu Asp Ala Pro Leu
 1140 1145 1150
 Gly Thr Ser Val Leu Gln Leu Glu Ala Trp Asp Pro Asp Ser Ser Ser
 1155 1160 1165
 Gln Gly Lys Leu Thr Phe Asn Leu Thr Ser Gly Asn His Leu Gly His
 1170 1175 1180
 Phe Ile Val His Pro Phe Thr Gly Leu Leu Thr Thr Ala Lys Gln Leu
 1185 1190 1195 1200
 Asp Arg Glu Asn Lys Asp Glu Tyr Val Leu Glu Val Thr Val Gln Asp
 1205 1210 1215
 Asn Gly Asp Pro Ser Leu Arg Ser Thr Ser Arg Val Val Val Cys Ile
 1220 1225 1230
 Leu Asp Val Asn Asp Asn Pro Pro Met Phe Ser His Lys Leu Phe Asn
 1235 1240 1245
 Val Arg Leu Ser Glu Arg Leu Ser Pro Leu Ser Pro Glu Pro Val Tyr
 1250 1255 1260

Arg Leu Val Ala Ser Asp Pro Asp Glu Gly Leu Asn Gly Ser Val Thr
 1265 1270 1275 1280

Tyr Ser Ile Glu Glu Ser Asp Glu Glu Ser Phe Arg Ile Asp Pro Val
 1285 1290 1295

Thr Gly Val Val Ser Ser Ser Ser Thr Phe Ala Ala Gly Glu Tyr Asn
 1300 1305 1310

Ile Leu Thr Ile Lys Ala Thr Asp Ser Gly Gln Pro Ala Leu Ser Thr
 1315 1320 1325

Ser Val Arg Leu His Ile Glu Trp Ile Pro Gln Pro Arg Pro Ser Ser
 1330 1335 1340

Ile Pro Leu Ser Phe Asp Glu Ser Tyr Tyr Ser Phe Thr Val Met Glu
 1345 1350 1355 1360

Thr Asp Pro Val Asn His Met Val Gly Val Ile Ser Val Glu Gly Arg
 1365 1370 1375

Pro Gly Leu Phe Trp Phe His Ile Ser Asp Gly Asp Lys Asp Met Asp
 1380 1385 1390

Phe Asp Ile Glu Lys Thr Thr Gly Ser Ile Val Ile Ala Arg Pro Leu
 1395 1400 1405

Asp Thr Arg Arg Lys Ser Ser Tyr Asn Leu Thr Val Glu Val Thr Asp
 1410 1415 1420

Gly Phe His Thr Ile Ala Thr Gln Val His Ile Phe Met Ile Ala Asn
 1425 1430 1435 1440

Ile Asn His His Arg Pro Gln Phe Leu Gln Asp His Tyr Glu Ile Arg
 1445 1450 1455

Val Pro Gln Asp Thr Leu Pro Gly Val Glu Leu Leu Arg Val Gln Ala
 1460 1465 1470

Thr Asp Gln Asp His Gly Lys Gly Leu Ile Tyr Thr Ile Leu Ser Ser
 1475 1480 1485

Gln Asp Pro Gly Ser Ala Asn Leu Phe Gln Leu Asp Pro Ser Ser Gly
 1490 1495 1500

Val Leu Val Thr Val Gly Thr Leu Glu Leu His Ser Gly Pro Ser Gln
 1505 1510 1515 1520

His Ile Leu Thr Val Met Val Arg Asp Gln Glu Met Pro Ile Lys Arg
 1525 1530 1535

Asn Phe Val Trp Val Thr Ile His Val Glu Asp Gly Asn Leu His Ser
 1540 1545 1550

Pro His Phe Thr Gln Leu Arg Tyr Glu Ala Asn Val Pro Asp Thr Thr
 1555 1560 1565

Ala Pro Gly Thr Glu Leu Leu Gln Val Arg Ala Val Asp Ala Asp Arg
 1570 1575 1580

Gly Ala Asn Ala Glu Ile His Tyr Ser Phe Leu Lys Gly Asn Ser Asp
 1585 1590 1595 1600

Gly Phe Phe Asn Ile Asp Ser Leu Leu Gly Ile Ile Thr Val Ala Gln
 1605 1610 1615

Arg Leu Tyr His Val His Leu Thr Arg His Ala Leu Thr Val Lys Ala
 1620 1625 1630

Glu Asp Gln Gly Ser Pro Arg Arg His Asp Leu Ala Leu Val Val Ile
 1635 1640 1645

His Val His Pro Ser Asp Ser Ser Ala Pro Val Phe Ser Lys Asp Glu
 1650 1655 1660

Tyr Phe Ile Glu Ile Pro Glu Ser Val Pro Ile Gly Ser Pro Ile Leu
 1665 1670 1675 1680

Leu Leu Ser Ala Gly Ser Ser Ser Glu Val Thr Tyr Glu Leu Arg Glu
 1685 1690 1695

Gly Asn Lys Asp Ser Val Phe Ser Met Asn Ser Tyr Ser Gly Leu Ile
 1700 1705 1710

Ser Thr Gln Lys Arg Leu Asp His Glu Lys Val Pro Ser Tyr Arg Leu
 1715 1720 1725

Arg Ile Arg Gly Ser Asn Met Ala Gly Val Phe Thr Glu Val Val Ala
 1730 1735 1740

Leu Val Tyr Ile Ile Asp Glu Asn Asp Asn Pro Pro Ala Phe Gly Lys
 1745 1750 1755 1760

Pro Thr Phe Leu Gly His Ile Ser Glu Ala Ala Pro Leu His Ser Leu
 1765 1770 1775

Ile Leu Gly Glu Asp Asn Ser Pro Leu Val Val Arg Ala Ser Asp Ser
 1780 1785 1790

Asp Arg Glu Ala Asn Ser Leu Leu Val Tyr Lys Ile Leu Glu Pro Glu
 1795 1800 1805

Ala Leu Lys Phe Phe Lys Ile Asp Pro Ser Met Gly Thr Leu Thr Thr
 1810 1815 1820

Thr Ser Glu Leu Asp Phe Glu Asp Thr Pro Leu Phe Gln Phe Asn Ile
 1825 1830 1835 1840

Tyr Val His Asp Gln Gly Thr Pro Ile Leu Phe Ala Pro Arg Ser Ala
 1845 1850 1855

Lys Val Ile Ile His Val Arg Asp Val Asn Asp Ser Pro Pro Arg Phe
 1860 1865 1870

Ser Glu Gln Ile Tyr Glu Val Ala Val Val Glu Pro Ile His Pro Gly
 1875 1880 1885

Met Gly Leu Leu Thr Val Gln Ala Glu Asp Asn Asp Ser Arg Val Thr
 1890 1895 1900

Tyr Ser Ile Lys Thr Ser Asn Ala Asp Glu Ala Val Thr Ile His Pro
 1905 1910 1915 1920

Thr Thr Gly Gln Ile Ser Val Val Asn Pro Ala Thr Leu Arg Leu Phe
 1925 1930 1935

Gln Lys Phe Ser Ile Arg Ala Ser Asp Gly Leu Tyr His Asp Thr Ala
 1940 1945 1950

Val Val Lys Ile Ser Leu Thr Gln Val Leu Asp Lys Ser Leu Gln Phe
 1955 1960 1965

Asp Gln Asp Val Tyr Arg Ala Arg Val Thr Glu Asn Thr Pro His Arg
 1970 1975 1980

Lys Ala Leu Val Ile Leu Gly Val His Gly Asn His Leu Asn Asp Thr
 1985 1990 1995 2000

Leu Ser Tyr Phe Leu Leu Asn Gly Thr Asp Leu Phe His Met Ile Glu
 2005 2010 2015

Ser Ala Gly Val Leu Gln Thr Arg Gly Gly Thr Phe Asp Arg Glu Gln
 2020 2025 2030

Gln Asp Thr His Glu Val Ala Val Glu Val Arg Asp Asn Arg Val Pro
 2035 2040 2045

Gln Arg Val Ala Gln Ala Leu Val Arg Val Ser Val Glu Asp Val Asn
 2050 2055 2060

Asp Asn Ile Pro Glu Phe Gln His Leu Pro Tyr Tyr Thr Val Ile Gln
 2065 2070 2075 2080

Asp Gly Thr Glu Pro Gly Asp Val Leu Phe Gln Val Ser Ala Thr Asp
 2085 2090 2095

Lys Asp Leu Gly Ala Asn Gly Ser Val Thr Tyr Gly Phe Ala Glu Asp
 2100 2105 2110

Tyr Ala Tyr Phe Arg Ile Asp Pro Tyr Val Gly Asp Ile Ser Leu Lys
 2115 2120 2125

Lys Pro Phe Asp Tyr Gln Ala Leu Asn Lys Tyr His Leu Arg Val Ile
 2130 2135 2140

Ala Arg Asp Ser Gly Ile Pro Pro Leu Gln Thr Glu Val Glu Val His
 2145 2150 2155 2160

Val Thr Val Arg Asn Lys Ser Asn Pro Leu Phe Gln Ser Pro Tyr Tyr
 2165 2170 2175

Lys Val Lys Val Pro Glu Asn Ile Thr Leu Tyr Thr Pro Ile Leu His
 2180 2185 2190
 Thr Gln Ala Arg Ser Pro Glu Gly Leu Arg Leu Ile Tyr Asn Ile Val
 2195 2200 2205
 Glu Glu Glu Pro Leu Met Leu Phe Thr Thr Asp Phe Lys Thr Gly Val
 2210 2215 2220
 Leu Thr Val Thr Gly Pro Leu Asp Tyr Glu Ser Lys Asn Lys His Val
 2225 2230 2235 2240
 Phe Thr Val Arg Ala Thr Asp Thr Ala Leu Gly Ser Phe Ser Glu Ala
 2245 2250 2255
 Thr Val Glu Val Leu Val Glu Asp Ile Asn Asp Asn Pro Pro Thr Phe
 2260 2265 2270
 Ser Gln Leu Val Tyr Thr Thr Ser Val Ser Glu Gly Ser Pro Ala Gln
 2275 2280 2285
 Thr Pro Val Ile Gln Leu Leu Ala Ser Asp Gln Asp Ser Gly Gln Asn
 2290 2295 2300
 Gln Asp Val Ser Tyr Gln Ile Val Glu Asp Gly Ser Asp Val Ser Lys
 2305 2310 2315 2320
 Phe Phe Arg Ile Asn Gly Ser Thr Gly Glu Ile Phe Thr Ile Gln Glu
 2325 2330 2335
 Leu Asp Tyr Glu Thr His Gln His Phe Arg Val Lys Val Arg Ala Met
 2340 2345 2350
 Asp Lys Gly Asp Pro Pro Leu Thr Gly Glu Thr Leu Val Val Val Asn
 2355 2360 2365
 Val Ser Asp Ile Asn Asp Asn Pro Pro Lys Phe Arg Glu Pro Gln Tyr
 2370 2375 2380
 Glu Ala Asn Val Ser Glu Leu Ala Thr Cys Gly His Leu Val Leu Lys
 2385 2390 2395 2400
 Val Gln Ala Leu Asp Pro Asp Ile Gly Asp Thr Ser Arg Leu Glu Tyr
 2405 2410 2415
 Leu Ile Leu Ser Gly Asn Gln Asp Arg His Phe Ser Ile Asn Ser Thr
 2420 2425 2430
 Ser Gly Ile Ile Ser Met Phe Asn Leu Cys Lys Lys Gln Leu Asp Ser
 2435 2440 2445
 Ser Tyr Asn Leu Arg Val Gly Ala Ser Asp Gly Val Phe Arg Ala Thr
 2450 2455 2460
 Val Pro Val Tyr Ile Asn Thr Thr Asn Ala Asn Lys Tyr Ser Pro Glu
 2465 2470 2475 2480

Phe Gln Gln Asn Val Tyr Glu Ala Glu Leu Ala Glu Asn Ala Lys Val
 2485 2490 2495

Gly Thr Lys Val Ile Glu Leu Leu Ala Ile Asp Lys Asp Ser Gly Pro
 2500 2505 2510

Tyr Gly Thr Val Asp Tyr Thr Ile Ile Asn Lys Leu Ala Gly Glu Arg
 2515 2520 2525

Phe Phe Ile Asn Pro Arg Gly Gln Ile Thr Thr Leu Gln Lys Leu Asp
 2530 2535 2540

Arg Glu Asn Ser Thr Glu Arg Val Ile Ala Ile Lys Val Met Ala Arg
 2545 2550 2555 2560

Asp Gly Gly Gly Lys Val Ala Phe Cys Thr Val Lys Ile Ile Leu Thr
 2565 2570 2575

Asp Glu Asn Asp Asn Ala Pro Gln Phe Lys Ala Ser Gly Tyr Thr Val
 2580 2585 2590

Ser Ile Pro Ser Asn Val Ser Arg Asp Ser Pro Ile Ile Gln Val Leu
 2595 2600 2605

Ala Tyr Asp Ala Asp Glu Gly Arg Asn Ala Asp Val Thr Tyr Ser Val
 2610 2615 2620

Asp Ser Thr Glu Asp Leu Ala Glu Glu Ile Ile Glu Val Asn Pro Thr
 2625 2630 2635 2640

Thr Gly Val Val Lys Val Lys Glu Ser Leu Val Gly Leu Glu Asn Arg
 2645 2650 2655

Ala Val Asp Phe Asn Ile Lys Ala Gln Asp Gly Gly Pro Pro His Trp
 2660 2665 2670

Asp Ser Leu Val Pro Val Arg Leu Gln Val Val Pro Asn Glu Ile Pro
 2675 2680 2685

Leu Pro Lys Phe Ser Glu Pro Leu Tyr Thr Phe Ser Ala Pro Glu Asp
 2690 2695 2700

Leu Pro Glu Gly Ser Glu Ile Gly Ser Val Lys Ala Val Ala Ala Gln
 2705 2710 2715 2720

Asp Pro Ile Ile Tyr Ser Leu Val Gln Gly Thr Thr Pro Glu Ser Asn
 2725 2730 2735

Ser Asp Asp Val Phe Ser Leu Asp Gln Asp Thr Gly Val Leu Lys Val
 2740 2745 2750

Arg Lys Ala Met Asp His Glu Ser Thr Lys Trp Tyr Gln Ile Asp Leu
 2755 2760 2765

Met Ala His Cys Pro His Glu Asp Thr Asp Leu Val Ser Leu Val Ser
 2770 2775 2780

Val Ser Ile Gln Val Glu Asp Val Asn Asp Asn Arg Pro Val Phe Glu
2785 2790 2795 2800
Ala Asp Pro Tyr Lys Ala Phe Leu Thr Glu Asn Met Pro Gly Gly Thr
2805 2810 2815
Thr Val Ile Gln Val Thr Ala Asn Asp Gln Asp Thr Gly Ser Asp Gly
2820 2825 2830
Gln Val Ser Tyr Arg Leu Ser Val Glu Pro Gly Ser Asn Ile His Glu
2835 2840 2845
Leu Phe Ala Val Asp Ser Glu Ser Gly Trp Ile Thr Thr Leu Gln Glu
2850 2855 2860
Leu Asp Cys Glu Thr Gln Gln Thr Tyr Arg Phe Tyr Val Val Ala Phe
2865 2870 2875 2880
Asp His Gly Gln Thr Ile Gln Leu Ser Ser Gln Ala Leu Val Glu Val
2885 2890 2895
Ser Ile Thr Asp Glu Asn Asp Asn Pro Pro Arg Phe Ala Ser Glu Asp
2900 2905 2910
Tyr Arg Gly Ser Val Val Glu Asn Asn Glu Pro Gly Glu Leu Val Ala
2915 2920 2925
Thr Leu Lys Thr Leu Asp Ala Asp Val Ser Asp Gln Asn Arg Gln Val
2930 2935 2940
Thr Cys Tyr Ile Thr Glu Gly Asp Pro Leu Gly Gln Phe Ser Ile Ser
2945 2950 2955 2960
Gln Val Gly Asp Glu Trp Arg Ile Ser Ser Arg Lys Thr Leu Asp Arg
2965 2970 2975
Glu His Ile Ala Lys Tyr Leu Leu Arg Val Thr Ala Ser Asp Gly Lys
2980 2985 2990
Phe Gln Ala Ser Val Pro Val Glu Val Phe Val Val Asp Ile Asn Asp
2995 3000 3005
Asn Ser Pro Gln Cys Ser Gln Leu Leu Tyr Thr Gly Lys Val Arg Glu
3010 3015 3020
Asp Val Thr Pro Gly His Phe Ile Leu Lys Val Ser Ala Ile Asp Val
3025 3030 3035 3040
Asp Met Asp Thr Asn Ala Gln Ile Thr Tyr Ser Leu His Gly Pro Gly
3045 3050 3055
Ala Gln Glu Phe Lys Leu Asp Pro His Thr Gly Glu Leu Thr Thr Leu
3060 3065 3070
Thr Val Leu Asp Arg Glu Arg Lys Asp Val Tyr Asn Leu Val Ala Lys
3075 3080 3085

Ala Thr Asp Gly Gly Gly Gln Ser Cys Gln Ala Glu Val Thr Leu His
 3090 3095 3100

Ile Glu Asp Val Asn Asp Asn Ala Pro Arg Phe Phe Pro Ser His Cys
 3105 3110 3115 3120

Asp Val Ala Val Phe Asp Asn Thr Thr Val Lys Thr Pro Val Ala Val
 3125 3130 3135

Val Phe Ala Arg Asp Pro Asp Gln Gly Ala Asn Ala Gln Val Val Tyr
 3140 3145 3150

Ser Leu Thr Asp Ser Ala Asp Gly Gln Phe Ser Ile Asp Ala Thr Ser
 3155 3160 3165

Gly Val Ile Arg Leu Glu Lys Pro Leu Gln Val Arg Ala Ser Ser Ala
 3170 3175 3180

Val Glu Leu Thr Val Arg Ala Ser Asp Leu Gly Thr Pro Ile Pro Leu
 3185 3190 3195 3200

Ser Thr Leu Gly Thr Val Thr Val Ser Val Val Gly Leu Glu Asp Tyr
 3205 3210 3215

Leu Pro Ile Phe Leu Asn Ala Glu His Ser Thr Gln Val Pro Glu Asp
 3220 3225 3230

Ala Pro Ile Asp Met Glu Val Leu His Leu Ala Thr Leu Thr Arg Pro
 3235 3240 3245

Gly Ser Glu Lys Thr Gly Tyr His Ile Thr Gly Gly Asn Glu Gln Gly
 3250 3255 3260

Lys Phe Arg Leu Asp Ala His Thr Gly Ile Leu Tyr Val Asn Gly Ser
 3265 3270 3275 3280

Leu Asp Phe Glu Thr Asn Pro Lys Tyr Phe Leu Ser Ile Glu Cys Ser
 3285 3290 3295

Arg Lys Ser Ser Ser Ser Leu Ser Asp Val Thr Thr Ile Val Ile Asn
 3300 3305 3310

Val Thr Asp Val Asn Glu His His Pro Arg Phe Thr His Asp Leu Tyr
 3315 3320 3325

Thr Val Arg Val Leu Glu Asn Ala Val Val Gly Asp Val Ile Leu Thr
 3330 3335 3340

Val Ser Ala Ser Asp Asp Asp Gly Pro Val Asn Ser Ala Ile Thr Tyr
 3345 3350 3355 3360

Ser Leu Val Gly Gly Asn Gln Leu Gly His Phe Thr Ile Asn Pro Lys
 3365 3370 3375

Lys Gly Lys Leu Gln Val Ala Lys Ala Leu Asp Trp Glu Gln Thr Pro
 3380 3385 3390

Ser Tyr Ser Leu Arg Leu Arg Ala Thr Asp Ser Gly Gln Pro Pro Leu
 3395 3400 3405

His Glu Asp Thr Glu Val Ala Val Glu Val Val Asp Val Asn Asp Asn
 3410 3415 3420

Pro Pro Arg Phe Phe Gln Leu Asn Tyr Ser Thr Ser Val Gln Glu Asn
 3425 3430 3435 3440

Ser Pro Ile Gly Ile Lys Val Leu Gln Leu Ile Leu Asp Asp Pro Asp
 3445 3450 3455

Ser Pro Gln Asn Gly Pro Pro Tyr Phe Phe Arg Ile Thr Glu Gly Asn
 3460 3465 3470

Thr Gly Ser Val Phe Arg Val Thr Pro Asp Gly Trp Leu Val Thr Ala
 3475 3480 3485

Ala Ser Leu Ser Lys Lys Ala Arg Glu Trp Tyr Gln Leu His Ile Glu
 3490 3495 3500

Val Ser Asp Ser Gly Leu Pro Pro Leu Ser Ser Ser Thr Leu Val Arg
 3505 3510 3515 3520

Val Gln Val Thr Glu Gln Ser Arg Tyr Pro Pro Ser Thr Leu Pro Leu
 3525 3530 3535

Glu Ile Ser Ile Thr Lys Gly Glu Glu Glu Phe Gln Gly Gly Met Ile
 3540 3545 3550

Gly Lys Ile His Ala Thr Asp Arg Asp Pro Gln Asp Thr Leu Thr Tyr
 3555 3560 3565

Ser Leu Glu Gln Glu Gly Gly Leu Asp Arg Tyr Phe Thr Val Gly Ala
 3570 3575 3580

Ser Asp Gly Lys Ile Ile Ala Ser Gln Gly Leu Pro His Gly Arg Tyr
 3585 3590 3595 3600

Ser Phe Asn Val Thr Val Ser Asp Gly Thr Phe Thr Thr Thr Thr Gly
 3605 3610 3615

Val His Val His Val Trp His Met Glu Pro Glu Val Pro Gln Gln Ala
 3620 3625 3630

Val Trp Leu Gly Phe His Gln Leu Thr Pro Glu Glu Leu Val Ser Asp
 3635 3640 3645

His Trp Arg Asn Leu Gln Arg Phe Leu Ser Asn Leu Leu Asp Val Lys
 3650 3655 3660

Arg Ala Asn Ile His Leu Ala Ser Leu Gln Pro Ala Glu Val Thr Ala
 3665 3670 3675 3680

Gly Val Asp Val Leu Leu Val Phe Glu Arg His Ser Gly Thr Ser Tyr
 3685 3690 3695

Asp Leu Gln Glu Leu Ala Ser Ala Ile Ala His Ser Val Arg Glu Ile
 3700 3705 3710

Glu His Ser Val Gly Ile Arg Met Arg Ser Ala Leu Pro Val Val Pro
 3715 3720 3725

Cys Gln Gly Gln Ser Cys Gln Asp Gln Thr Cys Gln Glu Thr Val Ser
 3730 3735 3740

Leu Glu Pro Arg Val Gly Pro Ser Tyr Ser Thr Ala Arg Leu Ser Ile
 3745 3750 3755 3760

Leu Thr Pro Arg His His Leu Gly Arg Asn Cys Ser Cys Asn Gly Thr
 3765 3770 3775

Thr Leu Arg Phe Ser Gly Gln Ser Tyr Val Gln Tyr Arg Pro Leu Glu
 3780 3785 3790

Ala Gln Asn Trp Gln Ile His Phe Tyr Leu Lys Thr Leu Gln Pro Trp
 3795 3800 3805

Ala Leu Leu Met Phe Thr Asn Glu Thr Ala Ser Ile Ser Leu Lys Leu
 3810 3815 3820

Ala Asn Gly Phe Ser His Leu Glu Tyr His Cys Pro Gly Gly Phe Tyr
 3825 3830 3835 3840

Gly Asn Leu Ser Ser Arg Tyr Pro Val Asn Asp Gly Gln Trp His Ser
 3845 3850 3855

Met Leu Leu Glu Glu Arg Asp Thr Ser Val His Leu Leu Val Asp Ile
 3860 3865 3870

Thr Asp Asn Ala Ser Leu Val Ile Pro Glu Glu Cys Gln Gly Leu Arg
 3875 3880 3885

Thr Glu Arg Gln Leu Leu Leu Gly Gly Leu Val Pro Ser Asn Pro Ser
 3890 3895 3900

Ser Asn Val Ser Leu Gly Phe Glu Gly Cys Leu Asp Ala Val Val Val
 3905 3910 3915 3920

Asn Gly Glu Arg Leu Glu Leu Leu Gly Arg Glu Lys Lys Met Glu Gly
 3925 3930 3935

Arg Leu Glu Thr Trp Ala Leu Ser Gln Cys Cys Trp Pro Gly Thr Ala
 3940 3945 3950

Cys Ser Gln Ser Pro Cys Leu Asn Gly Gly Ser Cys Ser Pro Ala Leu
 3955 3960 3965

Gly Ser Gly Tyr Leu Cys Arg Cys Pro Pro Pro Phe Ser Gly Arg Asn
 3970 3975 3980

Cys Glu Leu Gly Arg Glu Asn Cys Thr Ser Ala Pro Cys Gln Glu Gly
 3985 3990 3995 4000

Gly Thr Cys Val Ser Ser Pro Glu Gly Thr Ser Cys Asn Cys Pro His
 4005 4010 4015
 Pro Tyr Thr Gly Asp Arg Cys Glu Met Glu Ala Arg Gly Cys Ser Gly
 4020 4025 4030
 Gly His Cys Leu Ile Thr Pro Glu Ile Lys Arg Gly Asp Trp Gly Gln
 4035 4040 4045
 Gln Glu Phe Leu Val Ile Thr Val Ala Leu Pro Leu Val Ile Ile Ala
 4050 4055 4060
 Thr Val Gly Leu Leu Leu Tyr Cys Arg Arg Arg Lys Ser His Lys Pro
 4065 4070 4075 4080
 Val Thr Met Glu Asp Pro Asp Leu Leu Ala Arg Ser Ile Gly Val Asp
 4085 4090 4095
 Thr Gln Ala Ser Pro Ala Ile Glu Leu Asp Pro Leu Asn Thr Ser Ser
 4100 4105 4110
 Cys Asn Asn Leu Asn Gln Pro Glu Pro Ser Lys Thr Ser Val Pro Asn
 4115 4120 4125
 Glu Leu Val Thr Phe Gly Pro Ser Ser Lys Gln Arg Pro Met Val Cys
 4130 4135 4140
 Ser Val Pro Pro Arg Leu Pro Pro Ala Ala Val Ser Ser His Pro Gly
 4145 4150 4155 4160
 His Glu Pro Ile Ile Lys Arg Thr Trp Ser Gly Glu Glu Leu Val Tyr
 4165 4170 4175
 Pro Ser Gly Ala Ala Val Trp Pro Pro Thr Tyr Ser Arg Lys Lys His
 4180 4185 4190
 Trp Glu Tyr Pro His Pro Glu Thr Met Gln Gly Thr Leu Pro Pro Ser
 4195 4200 4205
 Pro Arg Arg His Val Gly Pro Ala Val Met Pro Asp Pro Thr Gly Leu
 4210 4215 4220
 Tyr Gly Gly Phe Pro Phe Pro Leu Glu Leu Glu Asn Lys Arg Ala Pro
 4225 4230 4235 4240
 Leu Pro Pro Arg Tyr Ser Asn Gln Asn Leu Glu Asp Leu Met Pro Pro
 4245 4250 4255
 Arg Pro Pro Ser Pro Arg Glu His Leu Leu Ala Pro Cys Leu Asn Glu
 4260 4265 4270
 Tyr Thr Ala Ile Ser Tyr Tyr His Ser Gln Phe Arg Gln Gly Gly Gly
 4275 4280 4285
 Gly Pro Cys Leu Ala Glu Gly Gly Tyr Lys Gly Val Ser Met Arg Leu
 4290 4295 4300

Ser Arg Ala Gly Pro Ser Tyr Ala Asp Cys Glu Val Asn Gly Gly Pro
 4305 4310 4315 4320

Ala Thr Gly Arg Ser Gln Pro Arg Ala Pro Pro Asn Tyr Glu Gly Ser
 4325 4330 4335

Asp Met Val Glu Ser Asp Tyr Gly Ser Cys Glu Glu Val Met Phe
 4340 4345 4350

<210> 21
 <211> 4590
 <212> PRT
 <213> Homo sapiens

<400> 21
 Met Gly Arg His Leu Ala Leu Leu Leu Leu Leu Leu Leu Phe Gln
 1 5 10 15

His Phe Gly Asp Ser Asp Gly Ser Gln Arg Leu Glu Gln Thr Pro Leu
 20 25 30

Gln Phe Thr His Leu Glu Tyr Asn Val Thr Val Gln Glu Asn Ser Ala
 35 40 45

Ala Lys Thr Tyr Val Gly His Pro Val Lys Met Gly Val Tyr Ile Thr
 50 55 60

His Pro Ala Trp Glu Val Arg Tyr Lys Ile Val Ser Gly Asp Ser Glu
 65 70 75 80

Asn Leu Phe Lys Ala Glu Glu Tyr Ile Leu Gly Asp Phe Cys Phe Leu
 85 90 95

Arg Ile Arg Thr Lys Gly Gly Asn Thr Ala Ile Leu Asn Arg Glu Val
 100 105 110

Lys Asp His Tyr Thr Leu Ile Val Lys Ala Leu Glu Lys Asn Thr Asn
 115 120 125

Val Glu Ala Arg Thr Lys Val Arg Val Gln Val Leu Asp Thr Asn Asp
 130 135 140

Leu Arg Pro Leu Phe Ser Pro Thr Ser Tyr Ser Val Ser Leu Pro Glu
 145 150 155 160

Asn Thr Ala Ile Arg Thr Ser Ile Ala Arg Val Ser Ala Thr Asp Ala
 165 170 175

Asp Ile Gly Thr Asn Gly Glu Phe Tyr Tyr Ser Phe Lys Asp Arg Thr
 180 185 190

Asp Met Phe Ala Ile His Pro Thr Ser Gly Val Ile Val Leu Thr Gly
 195 200 205

Arg Leu Asp Tyr Leu Glu Thr Lys Leu Tyr Glu Met Glu Ile Leu Ala

| 210 | 215 | 220 |
|--|-----|-----|
| Ala Asp Arg Gly Met Lys Leu Tyr Gly Ser Ser Gly Ile Ser Ser Met 225 230 235 240 | | |
| Ala Lys Leu Thr Val His Ile Glu Gln Ala Asn Glu Cys Ala Pro Val 245 250 255 | | |
| Ile Thr Ala Val Thr Leu Ser Pro Ser Glu Leu Asp Arg Asp Pro Ala 260 265 270 | | |
| Tyr Ala Ile Val Thr Val Asp Asp Cys Asp Gln Gly Ala Asn Gly Asp 275 280 285 | | |
| Ile Ala Ser Leu Ser Ile Val Ala Gly Asp Leu Leu Gln Gln Phe Arg 290 295 300 | | |
| Thr Val Arg Ser Phe Pro Gly Ser Lys Glu Tyr Lys Val Lys Ala Ile 305 310 315 320 | | |
| Gly Asp Ile Asp Trp Asp Ser His Pro Phe Gly Tyr Asn Leu Thr Leu 325 330 335 | | |
| Gln Ala Lys Asp Lys Gly Thr Pro Pro Gln Phe Ser Ser Val Lys Val 340 345 350 | | |
| Ile His Val Thr Ser Pro Gln Phe Lys Ala Gly Pro Val Lys Phe Glu 355 360 365 | | |
| Lys Asp Val Tyr Arg Ala Glu Ile Ser Glu Phe Ala Pro Pro Asn Thr 370 375 380 | | |
| Pro Val Val Met Val Lys Ala Ile Pro Ala Tyr Ser His Leu Arg Tyr 385 390 395 400 | | |
| Val Phe Lys Arg Thr Pro Gly Lys Ala Lys Phe Ser Leu Asn Tyr Asn 405 410 415 | | |
| Thr Gly Leu Ile Ser Ile Leu Glu Pro Val Lys Arg Gln Gln Ala Ala 420 425 430 | | |
| His Phe Glu Leu Glu Val Thr Thr Ser Asp Arg Lys Ala Ser Thr Lys 435 440 445 | | |
| Val Leu Val Lys Val Leu Gly Ala Asn Ser Asn Pro Pro Glu Phe Thr 450 455 460 | | |
| Gln Thr Ala Tyr Lys Ala Ala Phe Asp Glu Asn Val Pro Ile Gly Thr 465 470 475 480 | | |
| Thr Ile Met Ser Leu Ser Ala Val Asp Pro Asp Glu Gly Glu Asn Gly 485 490 495 | | |
| Tyr Val Thr Tyr Ser Ile Ala Asn Leu Asn His Val Pro Phe Ala Ile 500 505 510 | | |
| Asp His Phe Thr Gly Ala Val Ser Thr Ser Glu Asn Leu Asp Tyr Glu | | |

| 515 | | | | | 520 | | | | | 525 | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Leu | Met | Pro | Arg | Val | Tyr | Thr | Leu | Arg | Ile | Arg | Ala | Ser | Asp | Trp | Gly | |
| 530 | | | | | 535 | | | | | 540 | | | | | | |
| Leu | Pro | Tyr | Arg | Arg | Glu | Val | Glu | Val | Leu | Ala | Thr | Ile | Thr | Leu | Asn | |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 | |
| Asn | Leu | Asn | Asp | Asn | Thr | Pro | Leu | Phe | Glu | Lys | Ile | Asn | Cys | Glu | Gly | |
| 565 | | | | | 570 | | | | | 575 | | | | | | |
| Thr | Ile | Pro | Arg | Asp | Leu | Gly | Val | Gly | Glu | Gln | Ile | Thr | Thr | Val | Ser | |
| 580 | | | | | 585 | | | | | 590 | | | | | | |
| Ala | Ile | Asp | Ala | Asp | Glu | Leu | Gln | Leu | Val | Gln | Tyr | Gln | Ile | Glu | Ala | |
| 595 | | | | | 600 | | | | | 605 | | | | | | |
| Gly | Asn | Glu | Leu | Asp | Leu | Phe | Ser | Leu | Asn | Pro | Asn | Ser | Gly | Val | Leu | |
| 610 | | | | | 615 | | | | | 620 | | | | | | |
| Ser | Leu | Lys | Arg | Ser | Leu | Met | Asp | Gly | Leu | Gly | Ala | Lys | Val | Ser | Phe | |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 | |
| His | Ser | Leu | Arg | Ile | Thr | Ala | Thr | Asp | Gly | Glu | Asn | Phe | Ala | Thr | Pro | |
| 645 | | | | | 650 | | | | | 655 | | | | | | |
| Leu | Tyr | Ile | Asn | Ile | Thr | Val | Ala | Ala | Ser | His | Lys | Leu | Val | Asn | Leu | |
| 660 | | | | | 665 | | | | | 670 | | | | | | |
| Gln | Cys | Glu | Glu | Thr | Gly | Val | Ala | Lys | Met | Leu | Ala | Glu | Lys | Leu | Leu | |
| 675 | | | | | 680 | | | | | 685 | | | | | | |
| Gln | Ala | Asn | Lys | Leu | His | Asn | Gln | Gly | Glu | Val | Glu | Asp | Ile | Phe | Phe | |
| 690 | | | | | 695 | | | | | 700 | | | | | | |
| Asp | Ser | His | Ser | Val | Asn | Ala | His | Ile | Pro | Gln | Phe | Arg | Ser | Thr | Leu | |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 | |
| Pro | Thr | Gly | Ile | Gln | Val | Lys | Glu | Asn | Gln | Pro | Val | Gly | Ser | Ser | Val | |
| 725 | | | | | 730 | | | | | 735 | | | | | | |
| Ile | Phe | Met | Asn | Ser | Thr | Asp | Leu | Asp | Thr | Gly | Phe | Asn | Gly | Lys | Leu | |
| 740 | | | | | 745 | | | | | 750 | | | | | | |
| Val | Tyr | Ala | Val | Ser | Gly | Gly | Asn | Glu | Asp | Ser | Cys | Phe | Met | Ile | Asp | |
| 755 | | | | | 760 | | | | | 765 | | | | | | |
| Met | Glu | Thr | Gly | Met | Leu | Lys | Ile | Leu | Ser | Pro | Leu | Asp | Arg | Glu | Thr | |
| 770 | | | | | 775 | | | | | 780 | | | | | | |
| Thr | Asp | Lys | Tyr | Thr | Leu | Asn | Ile | Thr | Val | Tyr | Asp | Leu | Gly | Ile | Pro | |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 | |
| Gln | Lys | Ala | Ala | Trp | Arg | Leu | Leu | His | Val | Val | Val | Val | Asp | Ala | Asn | |
| 805 | | | | | 810 | | | | | 815 | | | | | | |
| Asp | Asn | Pro | Pro | Glu | Phe | Leu | Gln | Glu | Ser | Tyr | Phe | Val | Glu | Val | Ser | |

| 820 | | | | | 825 | | | | | 830 | | | | | | |
|------|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|-----|------|--|
| Glu | Asp | Lys | Glu | Val | His | Ser | Glu | Ile | Ile | Gln | Val | Glu | Ala | Thr | Asp | |
| 835 | | | | | 840 | | | | | 845 | | | | | | |
| Lys | Asp | Leu | Gly | Pro | Asn | Gly | His | Val | Thr | Tyr | Ser | Ile | Leu | Thr | Asp | |
| 850 | | | | | 855 | | | | | 860 | | | | | | |
| Thr | Asp | Thr | Phe | Ser | Ile | Asp | Ser | Val | Thr | Gly | Val | Val | Asn | Ile | Ala | |
| 865 | | | | | 870 | | | | | 875 | | | | | 880 | |
| Arg | Pro | Leu | Asp | Arg | Glu | Leu | Gln | His | Glu | His | Ser | Leu | Lys | Ile | Glu | |
| 885 | | | | | 890 | | | | | 895 | | | | | | |
| Ala | Arg | Asp | Gln | Ala | Arg | Glu | Glu | Pro | Gln | Leu | Phe | Ser | Thr | Val | Val | |
| 900 | | | | | 905 | | | | | 910 | | | | | | |
| Val | Lys | Val | Ser | Leu | Glu | Asp | Val | Asn | Asp | Asn | Pro | Pro | Thr | Phe | Ile | |
| 915 | | | | | 920 | | | | | 925 | | | | | | |
| Pro | Pro | Asn | Tyr | Arg | Val | Lys | Val | Arg | Glu | Asp | Leu | Pro | Glu | Gly | Thr | |
| 930 | | | | | 935 | | | | | 940 | | | | | | |
| Val | Ile | Met | Trp | Leu | Glu | Ala | His | Asp | Pro | Asp | Leu | Gly | Gln | Ser | Gly | |
| 945 | | | | | 950 | | | | | 955 | | | | | 960 | |
| Gln | Val | Arg | Tyr | Ser | Leu | Leu | Asp | His | Gly | Glu | Gly | Asn | Phe | Asp | Val | |
| 965 | | | | | 970 | | | | | 975 | | | | | | |
| Asp | Lys | Leu | Ser | Gly | Ala | Val | Arg | Ile | Val | Gln | Gln | Leu | Asp | Phe | Glu | |
| 980 | | | | | 985 | | | | | 990 | | | | | | |
| Lys | Lys | Gln | Val | Tyr | Asn | Leu | Thr | Val | Arg | Ala | Lys | Asp | Lys | Gly | Lys | |
| 995 | | | | | 1000 | | | | | 1005 | | | | | | |
| Pro | Val | Ser | Leu | Ser | Ser | Thr | Cys | Tyr | Val | Glu | Val | Glu | Val | Val | Asp | |
| 1010 | | | | | 1015 | | | | | 1020 | | | | | | |
| Val | Asn | Glu | Asn | Leu | His | Pro | Pro | Val | Phe | Ser | Ser | Phe | Val | Glu | Lys | |
| 1025 | | | | | 1030 | | | | | 1035 | | | | | 1040 | |
| Gly | Thr | Val | Lys | Glu | Asp | Ala | Pro | Val | Gly | Ser | Leu | Val | Met | Thr | Val | |
| 1045 | | | | | 1050 | | | | | 1055 | | | | | | |
| Ser | Ala | His | Asp | Glu | Asp | Ala | Gly | Arg | Asp | Gly | Glu | Ile | Arg | Tyr | Ser | |
| 1060 | | | | | 1065 | | | | | 1070 | | | | | | |
| Ile | Arg | Asp | Gly | Ser | Gly | Val | Gly | Val | Phe | Lys | Ile | Gly | Glu | Glu | Thr | |
| 1075 | | | | | 1080 | | | | | 1085 | | | | | | |
| Gly | Val | Ile | Glu | Thr | Ser | Asp | Arg | Leu | Asp | Arg | Glu | Ser | Thr | Ser | His | |
| 1090 | | | | | 1095 | | | | | 1100 | | | | | | |
| Tyr | Trp | Leu | Thr | Val | Phe | Ala | Thr | Asp | Gln | Gly | Val | Val | Pro | Leu | Ser | |
| 1105 | | | | | 1110 | | | | | 1115 | | | | | 1120 | |
| Ser | Phe | Ile | Glu | Ile | Tyr | Ile | Glu | Val | Glu | Asp | Val | Asn | Asp | Asn | Ala | |

| 1125 | 1130 | 1135 |
|---|-----------------------------|------|
| Pro Gln Thr Ser Glu Pro Val Tyr Tyr | Pro Glu Ile Met Glu Asn Ser | |
| 1140 | 1145 | 1150 |
| Pro Lys Asp Val Ser Val Val Gln Ile Glu Ala Phe Asp Pro Asp Ser | | |
| 1155 | 1160 | 1165 |
| Ser Ser Asn Asp Lys Leu Met Tyr Lys Ile Thr Ser Gly Asn Pro Gln | | |
| 1170 | 1175 | 1180 |
| Gly Phe Phe Ser Ile His Pro Lys Thr Gly Leu Ile Thr Thr Thr Ser | | |
| 1185 | 1190 | 1195 |
| Arg Lys Leu Asp Arg Glu Gln Gln Asp Glu His Ile Leu Glu Val Thr | | |
| 1205 | 1210 | 1215 |
| Val Thr Asp Asn Gly Ser Pro Pro Lys Ser Thr Ile Ala Arg Val Ile | | |
| 1220 | 1225 | 1230 |
| Val Lys Ile Leu Asp Glu Asn Asp Asn Lys Pro Gln Phe Leu Gln Lys | | |
| 1235 | 1240 | 1245 |
| Phe Tyr Lys Ile Arg Leu Pro Glu Arg Glu Lys Pro Asp Arg Glu Arg | | |
| 1250 | 1255 | 1260 |
| Asn Ala Arg Arg Glu Pro Leu Tyr Arg Val Ile Ala Thr Asp Lys Asp | | |
| 1265 | 1270 | 1275 |
| Glu Gly Pro Asn Ala Glu Ile Ser Tyr Ser Ile Glu Asp Gly Asn Glu | | |
| 1285 | 1290 | 1295 |
| His Gly Lys Phe Phe Ile Glu Pro Lys Thr Gly Val Val Ser Ser Lys | | |
| 1300 | 1305 | 1310 |
| Arg Phe Ser Ala Ala Gly Glu Tyr Asp Ile Leu Ser Ile Lys Ala Val | | |
| 1315 | 1320 | 1325 |
| Asp Asn Gly Arg Pro Gln Lys Ser Ser Thr Thr Arg Leu His Ile Glu | | |
| 1330 | 1335 | 1340 |
| Trp Ile Ser Lys Pro Lys Gln Ser Leu Glu Pro Ile Ser Phe Glu Glu | | |
| 1345 | 1350 | 1355 |
| Ser Phe Phe Thr Phe Thr Val Met Glu Ser Asp Pro Val Ala His Met | | |
| 1365 | 1370 | 1375 |
| Ile Gly Val Ile Ser Val Glu Pro Pro Gly Ile Pro Leu Trp Phe Asp | | |
| 1380 | 1385 | 1390 |
| Ile Thr Gly Gly Asn Tyr Asp Ser His Phe Asp Val Asp Lys Gly Thr | | |
| 1395 | 1400 | 1405 |
| Gly Thr Ile Ile Val Ala Lys Pro Leu Asp Ala Glu Gln Lys Ser Asn | | |
| 1410 | 1415 | 1420 |
| Tyr Asn Leu Thr Val Glu Ala Thr Asp Gly Thr Thr Thr Ile Leu Thr | | |

| | | | |
|---|------|------|------|
| 1425 | 1430 | 1435 | 1440 |
| Gln Val Phe Ile Lys Val Ile Asp Thr Asn Asp His Arg Pro Gln Phe | 1445 | 1450 | 1455 |
| Ser Thr Ser Lys Tyr Glu Val Val Ile Pro Glu Asp Thr Ala Pro Glu | 1460 | 1465 | 1470 |
| Thr Glu Ile Leu Gln Ile Ser Ala Val Asp Gln Asp Glu Lys Asn Lys | 1475 | 1480 | 1485 |
| Leu Ile Tyr Thr Leu Gln Ser Ser Arg Asp Pro Leu Ser Leu Lys Lys | 1490 | 1495 | 1500 |
| Phe Arg Leu Asp Pro Ala Thr Gly Ser Leu Tyr Thr Ser Glu Lys Leu | 1505 | 1510 | 1515 |
| Asp His Glu Ala Val Ser Pro Ala His Leu Thr Val Met Val Arg Asp | 1525 | 1530 | 1535 |
| Gln Asp Val Pro Val Lys Arg Asn Phe Ala Arg Ile Val Val Asn Val | 1540 | 1545 | 1550 |
| Ser Asp Thr Asn Asp His Ala Pro Trp Phe Thr Ala Ser Ser Tyr Lys | 1555 | 1560 | 1565 |
| Gly Arg Val Tyr Glu Ser Ala Ala Val Gly Ser Val Val Leu Gln Val | 1570 | 1575 | 1580 |
| Thr Ala Leu Asp Lys Asp Lys Gly Lys Asn Ala Glu Val Leu Tyr Ser | 1585 | 1590 | 1595 |
| Ile Glu Ser Gly Asn Ile Gly Asn Ile Gly Asn Ser Phe Met Ile Asp | 1605 | 1610 | 1615 |
| Pro Val Leu Gly Ser Ile Lys Thr Ala Lys Glu Leu Asp Arg Ser Asn | 1620 | 1625 | 1630 |
| Gln Ala Glu Tyr Asp Leu Met Val Lys Ala Thr Asp Lys Gly Ser Pro | 1635 | 1640 | 1645 |
| Pro Met Ser Glu Ile Thr Ser Val Arg Ile Phe Val Thr Ile Ala Asp | 1650 | 1655 | 1660 |
| Asn Ala Ser Pro Lys Phe Thr Ser Lys Glu Tyr Ser Val Glu Leu Ser | 1665 | 1670 | 1675 |
| Glu Thr Val Ser Ile Gly Ser Phe Val Gly Met Val Thr Ala His Ser | 1685 | 1690 | 1695 |
| Gln Ser Ser Val Val Tyr Glu Ile Lys Asp Gly Asn Thr Gly Asp Ala | 1700 | 1705 | 1710 |
| Phe Asp Ile Asn Pro His Ser Gly Thr Ile Ile Thr Gln Lys Ala Leu | 1715 | 1720 | 1725 |
| Asp Phe Glu Thr Leu Pro Ile Tyr Thr Leu Ile Ile Gln Gly Thr Asn | | | |

| 1730 | 1735 | 1740 |
|---|------|-----------|
| Met Ala Gly Leu Ser Thr Asn Thr Thr Val Leu Val His Leu Gln Asp 1745 | 1750 | 1755 1760 |
| Glu Asn Asp Asn Ala Pro Val Phe Met Gln Ala Glu Tyr Thr Gly Leu 1765 | 1770 | 1775 |
| Ile Ser Glu Ser Ala Ser Ile Asn Ser Val Val Leu Thr Asp Arg Asn 1780 | 1785 | 1790 |
| Val Pro Leu Val Ile Arg Ala Ala Asp Ala Asp Lys Asp Ser Asn Ala 1795 | 1800 | 1805 |
| Leu Leu Val Tyr His Ile Val Glu Pro Ser Val His Thr Tyr Phe Ala 1810 | 1815 | 1820 |
| Ile Asp Ser Ser Thr Gly Ala Ile His Thr Val Leu Ser Leu Asp Tyr 1825 | 1830 | 1835 1840 |
| Glu Glu Thr Ser Ile Phe His Phe Thr Val Gln Val His Asp Met Gly 1845 | 1850 | 1855 |
| Thr Pro Arg Leu Phe Ala Glu Tyr Ala Ala Asn Val Thr Val His Val 1860 | 1865 | 1870 |
| Ile Asp Ile Asn Asp Cys Pro Pro Val Phe Ala Lys Pro Leu Tyr Glu 1875 | 1880 | 1885 |
| Ala Ser Leu Leu Leu Pro Thr Tyr Lys Gly Val Lys Val Ile Thr Val 1890 | 1895 | 1900 |
| Asn Ala Thr Asp Ala Asp Ser Ser Ala Phe Ser Gln Leu Ile Tyr Ser 1905 | 1910 | 1915 1920 |
| Ile Thr Glu Gly Asn Ile Gly Glu Lys Phe Ser Met Asp Tyr Lys Thr 1925 | 1930 | 1935 |
| Gly Ala Leu Thr Val Gln Asn Thr Thr Gln Leu Arg Ser Arg Tyr Glu 1940 | 1945 | 1950 |
| Leu Thr Val Arg Ala Ser Asp Gly Arg Phe Ala Gly Leu Thr Ser Val 1955 | 1960 | 1965 |
| Lys Ile Asn Val Lys Glu Ser Lys Glu Ser His Leu Lys Phe Thr Gln 1970 | 1975 | 1980 |
| Asp Val Tyr Ser Ala Val Val Lys Glu Asn Ser Thr Glu Ala Glu Thr 1985 | 1990 | 1995 2000 |
| Leu Ala Val Ile Thr Ala Ile Gly Ser Pro Ile Asn Glu Pro Leu Phe 2005 | 2010 | 2015 |
| Tyr His Ile Leu Asn Pro Asp Arg Arg Phe Lys Ile Ser Arg Thr Ser 2020 | 2025 | 2030 |
| Gly Val Leu Ser Thr Thr Gly Thr Pro Phe Asp Arg Glu Gln Gln Glu | | |

| | | | | | | | | | | | | | | | |
|------|-----|-----|-----|------|-----|-----|-----|------|-----|-----|-----|------|-----|-----|-----|
| 2035 | | | | 2040 | | | | 2045 | | | | | | | |
| Ala | Phe | Asp | Val | Val | Val | Glu | Val | Ile | Glu | Glu | His | Lys | Pro | Ser | Ala |
| 2050 | | | | 2055 | | | | 2060 | | | | | | | |
| Val | Ala | His | Val | Val | Val | Lys | Val | Ile | Val | Glu | Asp | Gln | Asn | Asp | Asn |
| 2065 | | | | 2070 | | | | 2075 | | | | 2080 | | | |
| Ala | Pro | Val | Phe | Val | Asn | Leu | Pro | Tyr | Tyr | Ala | Val | Val | Lys | Val | Asp |
| 2085 | | | | 2090 | | | | 2095 | | | | | | | |
| Thr | Glu | Val | Gly | His | Val | Ile | Arg | Tyr | Val | Thr | Ala | Val | Asp | Arg | Asp |
| 2100 | | | | 2105 | | | | 2110 | | | | | | | |
| Ser | Gly | Arg | Asn | Gly | Glu | Val | His | Tyr | Tyr | Leu | Lys | Glu | His | His | Glu |
| 2115 | | | | 2120 | | | | 2125 | | | | | | | |
| His | Phe | Gln | Ile | Gly | Pro | Leu | Gly | Glu | Ile | Ser | Leu | Lys | Lys | Gln | Phe |
| 2130 | | | | 2135 | | | | 2140 | | | | | | | |
| Glu | Leu | Asp | Thr | Leu | Asn | Lys | Glu | Tyr | Leu | Val | Thr | Val | Val | Ala | Lys |
| 2145 | | | | 2150 | | | | 2155 | | | | 2160 | | | |
| Asp | Gly | Gly | Asn | Pro | Ala | Phe | Ser | Ala | Glu | Val | Ile | Val | Pro | Ile | Thr |
| 2165 | | | | 2170 | | | | 2175 | | | | | | | |
| Val | Met | Asn | Lys | Ala | Met | Pro | Val | Phe | Glu | Lys | Pro | Phe | Tyr | Ser | Ala |
| 2180 | | | | 2185 | | | | 2190 | | | | | | | |
| Glu | Ile | Ala | Glu | Ser | Ile | Gln | Val | His | Ser | Pro | Val | Val | His | Val | Gln |
| 2195 | | | | 2200 | | | | 2205 | | | | | | | |
| Ala | Asn | Ser | Pro | Glu | Gly | Leu | Lys | Val | Phe | Tyr | Ser | Ile | Thr | Asp | Gly |
| 2210 | | | | 2215 | | | | 2220 | | | | | | | |
| Asp | Pro | Phe | Ser | Gln | Phe | Thr | Ile | Asn | Phe | Asn | Thr | Gly | Val | Ile | Asn |
| 2225 | | | | 2230 | | | | 2235 | | | | 2240 | | | |
| Val | Ile | Ala | Pro | Leu | Asp | Phe | Glu | Ala | His | Pro | Ala | Tyr | Lys | Leu | Ser |
| 2245 | | | | 2250 | | | | 2255 | | | | | | | |
| Ile | Arg | Ala | Thr | Asp | Ser | Leu | Thr | Gly | Ala | His | Ala | Glu | Val | Phe | Val |
| 2260 | | | | 2265 | | | | 2270 | | | | | | | |
| Asp | Ile | Ile | Val | Asp | Asp | Ile | Asn | Asp | Asn | Pro | Pro | Val | Phe | Ala | Gln |
| 2275 | | | | 2280 | | | | 2285 | | | | | | | |
| Gln | Ser | Tyr | Ala | Val | Thr | Leu | Ser | Glu | Ala | Ser | Val | Ile | Gly | Thr | Ser |
| 2290 | | | | 2295 | | | | 2300 | | | | | | | |
| Val | Val | Gln | Val | Arg | Ala | Thr | Asp | Ser | Asp | Ser | Glu | Pro | Asn | Arg | Gly |
| 2305 | | | | 2310 | | | | 2315 | | | | 2320 | | | |
| Ile | Ser | Tyr | Gln | Met | Phe | Gly | Asn | His | Ser | Lys | Ser | His | Asp | His | Phe |
| 2325 | | | | 2330 | | | | 2335 | | | | | | | |
| His | Val | Asp | Ser | Ser | Thr | Gly | Leu | Ile | Ser | Leu | Leu | Arg | Thr | Leu | Asp |

| | | |
|---|------|------|
| 2340 | 2345 | 2350 |
| Tyr Glu Gln Ser Arg Gln His Thr Ile Phe Val Arg Ala Val Asp Gly | | |
| 2355 | 2360 | 2365 |
| Gly Met Pro Thr Leu Ser Ser Asp Val Ile Val Thr Val Asp Val Thr | | |
| 2370 | 2375 | 2380 |
| Asp Leu Asn Gly Asn Pro Pro Leu Phe Glu Gln Gln Ile Tyr Glu Ala | | |
| 2385 | 2390 | 2395 |
| Arg Ile Ser Glu His Ala Pro His Gly His Phe Val Thr Cys Val Lys | | |
| 2405 | 2410 | 2415 |
| Ala Tyr Asp Ala Asp Ser Ser Asp Ile Asp Lys Leu Gln Tyr Ser Ile | | |
| 2420 | 2425 | 2430 |
| Leu Ser Gly Asn Asp His Lys His Phe Val Ile Asp Ser Ala Thr Gly | | |
| 2435 | 2440 | 2445 |
| Ile Ile Thr Leu Ser Asn Leu His Arg His Ala Leu Lys Pro Phe Tyr | | |
| 2450 | 2455 | 2460 |
| Ser Leu Asn Leu Ser Val Ser Asp Gly Val Phe Arg Ser Ser Thr Gln | | |
| 2465 | 2470 | 2475 |
| Val His Val Thr Val Ile Gly Gly Asn Leu His Ser Pro Ala Phe Leu | | |
| 2485 | 2490 | 2495 |
| Gln Asn Glu Tyr Glu Val Glu Leu Ala Glu Asn Ala Pro Leu His Thr | | |
| 2500 | 2505 | 2510 |
| Leu Val Met Glu Val Lys Thr Thr Asp Gly Asp Ser Gly Ile Tyr Gly | | |
| 2515 | 2520 | 2525 |
| His Val Thr Tyr His Ile Val Asn Asp Phe Ala Lys Asp Arg Phe Tyr | | |
| 2530 | 2535 | 2540 |
| Ile Asn Glu Arg Gly Gln Ile Phe Thr Leu Glu Lys Leu Asp Arg Glu | | |
| 2545 | 2550 | 2555 |
| Thr Pro Ala Glu Lys Val Ile Ser Val Arg Leu Met Ala Lys Asp Ala | | |
| 2565 | 2570 | 2575 |
| Gly Gly Lys Val Ala Phe Cys Thr Val Asn Val Ile Leu Thr Asp Asp | | |
| 2580 | 2585 | 2590 |
| Asn Asp Asn Ala Pro Gln Phe Arg Ala Thr Lys Tyr Glu Val Asn Ile | | |
| 2595 | 2600 | 2605 |
| Gly Ser Ser Ala Ala Lys Gly Thr Ser Val Val Lys Ser Ala Ser Asp | | |
| 2610 | 2615 | 2620 |
| Ala Asp Glu Gly Ser Asn Ala Asp Ile Thr Tyr Ala Ile Glu Ala Asp | | |
| 2625 | 2630 | 2635 |
| Ser Glu Ser Val Lys Glu Asn Leu Glu Ile Asn Lys Leu Ser Gly Val | | |

| | | |
|---|------|-----------|
| 2645 | 2650 | 2655 |
| Ile Thr Thr Lys Glu Ser Leu Ile Gly Leu Glu Asn Glu Phe Phe Thr | | |
| 2660 | 2665 | 2670 |
| Phe Phe Val Arg Ala Val Asp Asn Gly Ser Pro Ser Lys Glu Ser Val | | |
| 2675 | 2680 | 2685 |
| Val Leu Val Tyr Val Lys Ile Leu Pro Pro Glu Met Gln Leu Pro Lys | | |
| 2690 | 2695 | 2700 |
| Phe Ser Glu Pro Phe Tyr Thr Phe Thr Val Ser Glu Asp Val Pro Val | | |
| 2705 | 2710 | 2715 2720 |
| Gly Thr Glu Ile Asp Leu Ile Arg Ala Glu His Ser Gly Thr Val Leu | | |
| 2725 | 2730 | 2735 |
| Tyr Ser Leu Val Lys Gly Asn Thr Pro Glu Ser Asn Arg Asp Glu Ser | | |
| 2740 | 2745 | 2750 |
| Phe Val Ile Asp Arg Gln Ser Gly Arg Leu Lys Leu Glu Lys Ser Leu | | |
| 2755 | 2760 | 2765 |
| Asp His Glu Thr Thr Lys Trp Tyr Gln Phe Ser Ile Leu Ala Arg Cys | | |
| 2770 | 2775 | 2780 |
| Thr Gln Asp Asp His Glu Met Val Ala Ser Val Asp Val Ser Ile Gln | | |
| 2785 | 2790 | 2795 2800 |
| Val Lys Asp Ala Asn Asp Asn Ser Pro Val Phe Glu Ser Ser Pro Tyr | | |
| 2805 | 2810 | 2815 |
| Glu Ala Phe Ile Val Glu Asn Leu Pro Gly Gly Ser Arg Val Ile Gln | | |
| 2820 | 2825 | 2830 |
| Ile Arg Ala Ser Asp Ala Asp Ser Gly Thr Asn Gly Gln Val Met Tyr | | |
| 2835 | 2840 | 2845 |
| Ser Leu Asp Gln Ser Gln Ser Val Glu Val Ile Glu Ser Phe Ala Ile | | |
| 2850 | 2855 | 2860 |
| Asn Met Glu Thr Gly Trp Ile Thr Thr Leu Lys Glu Leu Asp His Glu | | |
| 2865 | 2870 | 2875 2880 |
| Lys Arg Asp Asn Tyr Gln Ile Lys Val Val Ala Ser Asp His Gly Glu | | |
| 2885 | 2890 | 2895 |
| Lys Ile Gln Leu Ser Ser Thr Ala Ile Val Asp Val Thr Val Thr Asp | | |
| 2900 | 2905 | 2910 |
| Val Asn Asp Ser Pro Pro Arg Phe Thr Ala Glu Ile Tyr Lys Gly Thr | | |
| 2915 | 2920 | 2925 |
| Val Ser Glu Asp Asp Pro Gln Gly Gly Val Ile Ala Ile Leu Ser Thr | | |
| 2930 | 2935 | 2940 |
| Thr Asp Ala Asp Ser Glu Glu Ile Asn Arg Gln Val Thr Tyr Phe Ile | | |

| | | | |
|---|------|------|------|
| 2945 | 2950 | 2955 | 2960 |
| Thr Gly Gly Asp Pro Leu Gly Gln Phe Ala Val Glu Thr Ile Gln Asn | 2965 | 2970 | 2975 |
| Glu Trp Lys Val Tyr Val Lys Lys Pro Leu Asp Arg Glu Lys Arg Asp | 2980 | 2985 | 2990 |
| Asn Tyr Leu Leu Thr Ile Thr Ala Thr Asp Gly Thr Phe Ser Ser Lys | 2995 | 3000 | 3005 |
| Ala Ile Val Glu Val Lys Val Leu Asp Ala Asn Asp Asn Ser Pro Val | 3010 | 3015 | 3020 |
| Cys Glu Lys Thr Leu Tyr Ser Asp Thr Ile Pro Glu Asp Val Leu Pro | 3025 | 3030 | 3035 |
| Gly Lys Leu Ile Met Gln Ile Ser Ala Thr Asp Ala Asp Ile Arg Ser | 3045 | 3050 | 3055 |
| Asn Ala Glu Ile Thr Tyr Thr Leu Leu Gly Ser Gly Ala Glu Lys Phe | 3060 | 3065 | 3070 |
| Lys Leu Asn Pro Asp Thr Gly Glu Leu Lys Thr Ser Thr Pro Leu Asp | 3075 | 3080 | 3085 |
| Arg Glu Glu Gln Ala Val Tyr His Leu Leu Val Arg Ala Thr Asp Gly | 3090 | 3095 | 3100 |
| Gly Gly Arg Phe Cys Gln Ala Ser Ile Val Val Thr Leu Glu Asp Val | 3105 | 3110 | 3115 |
| Asn Asp Asn Ala Pro Glu Phe Ser Ala Asp Pro Tyr Ala Ile Thr Val | 3125 | 3130 | 3135 |
| Phe Glu Asn Thr Glu Pro Gly Thr Leu Leu Thr Arg Val Gln Ala Thr | 3140 | 3145 | 3150 |
| Asp Ala Asp Ala Gly Leu Asn Arg Lys Ile Leu Tyr Ser Leu Ile Asp | 3155 | 3160 | 3165 |
| Ser Ala Asp Gly Gln Phe Ser Ile Asn Glu Leu Ser Gly Ile Ile Gln | 3170 | 3175 | 3180 |
| Leu Glu Lys Pro Leu Asp Arg Glu Leu Gln Ala Val Tyr Thr Leu Ser | 3185 | 3190 | 3195 |
| Leu Lys Ala Val Asp Gln Gly Leu Pro Arg Arg Leu Thr Ala Thr Gly | 3205 | 3210 | 3215 |
| Thr Val Ile Val Ser Val Leu Asp Ile Asn Asp Asn Pro Pro Val Phe | 3220 | 3225 | 3230 |
| Glu Tyr Arg Glu Tyr Gly Ala Thr Val Ser Glu Asp Ile Leu Val Gly | 3235 | 3240 | 3245 |
| Thr Glu Val Leu Gln Val Tyr Ala Ala Ser Arg Asp Ile Glu Ala Asn | | | |

| | | |
|---|------|-----------|
| 3250 | 3255 | 3260 |
| Ala Glu Ile Thr Tyr Ser Ile Ile Ser Gly Asn Glu His Gly Lys Phe | | |
| 3265 | 3270 | 3275 3280 |
| Ser Ile Asp Ser Lys Thr Gly Ala Val Phe Ile Ile Glu Asn Leu Asp | | |
| | 3285 | 3290 3295 |
| Tyr Glu Ser Ser His Glu Tyr Tyr Leu Thr Val Glu Ala Thr Asp Gly | | |
| | 3300 | 3305 3310 |
| Gly Thr Pro Ser Leu Ser Asp Val Ala Thr Val Asn Val Asn Val Thr | | |
| | 3315 | 3320 3325 |
| Asp Ile Asn Asp Asn Thr Pro Val Phe Ser Gln Asp Thr Tyr Thr Thr | | |
| | 3330 | 3335 3340 |
| Val Ile Ser Glu Asp Ala Val Leu Glu Gln Ser Val Ile Thr Val Met | | |
| 3345 | 3350 | 3355 3360 |
| Ala Asp Asp Ala Asp Gly Pro Ser Asn Ser His Ile His Tyr Ser Ile | | |
| | 3365 | 3370 3375 |
| Ile Asp Gly Asn Gln Gly Ser Ser Phe Thr Ile Asp Pro Val Arg Gly | | |
| | 3380 | 3385 3390 |
| Glu Val Lys Val Thr Lys Leu Leu Asp Arg Glu Thr Ile Ser Gly Tyr | | |
| | 3395 | 3400 3405 |
| Thr Leu Thr Val Gln Ala Ser Asp Asn Gly Ser Pro Pro Arg Val Asn | | |
| | 3410 | 3415 3420 |
| Thr Thr Thr Val Asn Ile Asp Val Ser Asp Val Asn Asp Asn Ala Pro | | |
| 3425 | 3430 | 3435 3440 |
| Val Phe Ser Arg Gly Asn Tyr Ser Val Ile Ile Gln Glu Asn Lys Pro | | |
| | 3445 | 3450 3455 |
| Val Gly Phe Ser Val Leu Gln Leu Val Val Thr Asp Glu Asp Ser Ser | | |
| | 3460 | 3465 3470 |
| His Asn Gly Pro Pro Phe Phe Phe Thr Ile Val Thr Gly Asn Asp Glu | | |
| | 3475 | 3480 3485 |
| Lys Ala Phe Glu Val Asn Pro Gln Gly Val Leu Leu Thr Ser Ser Ala | | |
| | 3490 | 3495 3500 |
| Ile Lys Arg Lys Glu Lys Asp His Tyr Leu Leu Gln Val Lys Val Ala | | |
| 3505 | 3510 | 3515 3520 |
| Asp Asn Gly Lys Pro Gln Leu Ser Ser Leu Thr Tyr Ile Asp Ile Arg | | |
| | 3525 | 3530 3535 |
| Val Ile Glu Glu Ser Ile Tyr Pro Pro Ala Ile Leu Pro Leu Glu Ile | | |
| | 3540 | 3545 3550 |
| Phe Ile Thr Ser Ser Gly Glu Glu Tyr Ser Gly Gly Val Ile Gly Lys | | |

| | | |
|---|------|-----------|
| 3555 | 3560 | 3565 |
| Ile His Ala Thr Asp Gln Asp Val Tyr Asp Thr Leu Thr Tyr Ser Leu | | |
| 3570 | 3575 | 3580 |
| Asp Pro Gln Met Asp Asn Leu Phe Ser Val Ser Ser Thr Gly Gly Lys | | |
| 3585 | 3590 | 3595 3600 |
| Leu Ile Ala His Lys Lys Leu Asp Ile Gly Gln Tyr Leu Leu Asn Val | | |
| 3605 | 3610 | 3615 |
| Ser Val Thr Asp Gly Lys Phe Thr Thr Val Ala Asp Ile Thr Val His | | |
| 3620 | 3625 | 3630 |
| Ile Arg Gln Val Thr Gln Glu Met Leu Asn His Thr Ile Ala Ile Arg | | |
| 3635 | 3640 | 3645 |
| Phe Ala Asn Leu Thr Pro Glu Glu Phe Val Gly Asp Tyr Trp Arg Asn | | |
| 3650 | 3655 | 3660 |
| Phe Gln Arg Ala Leu Arg Asn Ile Leu Gly Val Arg Arg Asn Asp Ile | | |
| 3665 | 3670 | 3675 3680 |
| Gln Ile Val Ser Leu Gln Ser Ser Glu Pro His Pro His Leu Asp Val | | |
| 3685 | 3690 | 3695 |
| Leu Leu Phe Val Glu Lys Pro Gly Ser Ala Gln Ile Ser Thr Lys Gln | | |
| 3700 | 3705 | 3710 |
| Leu Leu His Lys Ile Asn Ser Ser Val Thr Asp Ile Glu Glu Ile Ile | | |
| 3715 | 3720 | 3725 |
| Gly Val Arg Ile Leu Asn Val Phe Gln Lys Leu Cys Ala Gly Leu Asp | | |
| 3730 | 3735 | 3740 |
| Cys Pro Trp Lys Phe Cys Asp Glu Lys Val Ser Val Asp Glu Ser Val | | |
| 3745 | 3750 | 3755 3760 |
| Met Ser Thr His Ser Thr Ala Arg Leu Ser Phe Val Thr Pro Arg His | | |
| 3765 | 3770 | 3775 |
| His Arg Ala Ala Val Cys Leu Cys Lys Glu Gly Arg Cys Pro Pro Val | | |
| 3780 | 3785 | 3790 |
| His His Gly Cys Glu Asp Asp Pro Cys Pro Glu Gly Ser Glu Cys Val | | |
| 3795 | 3800 | 3805 |
| Ser Asp Pro Trp Glu Glu Lys His Thr Cys Val Cys Pro Ser Gly Arg | | |
| 3810 | 3815 | 3820 |
| Phe Gly Gln Cys Pro Gly Ser Ser Ser Met Thr Leu Thr Gly Asn Ser | | |
| 3825 | 3830 | 3835 3840 |
| Tyr Val Lys Tyr Arg Leu Thr Glu Asn Glu Asn Lys Leu Glu Met Lys | | |
| 3845 | 3850 | 3855 |
| Leu Thr Met Arg Leu Arg Thr Tyr Ser Thr His Ala Val Val Met Tyr | | |

| | | |
|---|------|-----------|
| 3860 | 3865 | 3870 |
| Ala Arg Gly Thr Asp Tyr Ser Ile Leu Glu Ile His His Gly Arg Leu | | |
| 3875 | 3880 | 3885 |
| Gln Tyr Lys Phe Asp Cys Gly Ser Gly Pro Gly Ile Val Ser Val Gln | | |
| 3890 | 3895 | 3900 |
| Ser Ile Gln Val Asn Asp Gly Gln Trp His Ala Val Ala Leu Glu Val | | |
| 3905 | 3910 | 3915 3920 |
| Asn Gly Asn Tyr Ala Arg Leu Val Leu Asp Gln Val His Thr Ala Ser | | |
| 3925 | 3930 | 3935 |
| Gly Thr Ala Pro Gly Thr Leu Lys Thr Leu Asn Leu Asp Asn Tyr Val | | |
| 3940 | 3945 | 3950 |
| Phe Phe Gly Gly His Ile Arg Gln Gln Gly Thr Arg His Gly Arg Ser | | |
| 3955 | 3960 | 3965 |
| Pro Gln Val Gly Asn Gly Phe Arg Gly Cys Met Asp Ser Ile Tyr Leu | | |
| 3970 | 3975 | 3980 |
| Asn Gly Gln Glu Leu Pro Leu Asn Ser Lys Pro Arg Ser Tyr Ala His | | |
| 3985 | 3990 | 3995 4000 |
| Ile Glu Glu Ser Val Asp Val Ser Pro Gly Cys Phe Leu Thr Ala Thr | | |
| 4005 | 4010 | 4015 |
| Glu Asp Cys Ala Ser Asn Pro Cys Gln Asn Gly Gly Val Cys Asn Pro | | |
| 4020 | 4025 | 4030 |
| Ser Pro Ala Gly Gly Tyr Tyr Cys Lys Cys Ser Ala Leu Tyr Ile Gly | | |
| 4035 | 4040 | 4045 |
| Thr His Cys Glu Ile Ser Val Asn Pro Cys Ser Ser Asn Pro Cys Leu | | |
| 4050 | 4055 | 4060 |
| Tyr Gly Gly Thr Cys Val Val Asp Asn Gly Gly Phe Val Cys Gln Cys | | |
| 4065 | 4070 | 4075 4080 |
| Arg Gly Leu Tyr Thr Gly Gln Arg Cys Gln Leu Ser Pro Tyr Cys Lys | | |
| 4085 | 4090 | 4095 |
| Asp Glu Pro Cys Lys Asn Gly Gly Thr Cys Phe Asp Ser Leu Asp Gly | | |
| 4100 | 4105 | 4110 |
| Ala Val Cys Gln Cys Asp Ser Gly Phe Arg Gly Glu Arg Cys Gln Ser | | |
| 4115 | 4120 | 4125 |
| Asp Ile Asp Glu Cys Ser Gly Asn Pro Cys Leu His Gly Ala Leu Cys | | |
| 4130 | 4135 | 4140 |
| Glu Asn Thr His Gly Ser Tyr His Cys Asn Cys Ser His Glu Tyr Arg | | |
| 4145 | 4150 | 4155 4160 |
| Gly Arg His Cys Glu Asp Ala Ala Pro Asn Gln Tyr Val Ser Thr Pro | | |

| 4165 | 4170 | 4175 |
|---|------|-----------|
| Trp Asn Ile Gly Leu Ala Glu Gly Ile Gly Ile Val Val Phe Val Ala 4180 | 4185 | 4190 |
| Gly Ile Phe Leu Leu Val Val Val Phe Val Leu Cys Arg Lys Met Ile 4195 | 4200 | 4205 |
| Ser Arg Lys Lys Lys His Gln Ala Glu Pro Lys Asp Lys His Leu Gly 4210 | 4215 | 4220 |
| Pro Ala Thr Ala Phe Leu Gln Arg Pro Tyr Phe Asp Ser Lys Leu Asn 4225 | 4230 | 4235 4240 |
| Lys Asn Ile Tyr Ser Asp Ile Pro Pro Gln Val Pro Val Arg Pro Ile 4245 | 4250 | 4255 |
| Ser Tyr Thr Pro Ser Ile Pro Ser Asp Ser Arg Asn Asn Leu Asp Arg 4260 | 4265 | 4270 |
| Asn Ser Phe Glu Gly Ser Ala Ile Pro Glu His Pro Glu Phe Ser Thr 4275 | 4280 | 4285 |
| Phe Asn Pro Glu Ser Val His Gly His Arg Lys Ala Val Ala Val Cys 4290 | 4295 | 4300 |
| Ser Val Ala Pro Asn Leu Pro Pro Pro Pro Pro Ser Asn Ser Pro Ser 4305 | 4310 | 4315 4320 |
| Asp Ser Asp Ser Ile Gln Lys Pro Ser Trp Asp Phe Asp Tyr Asp Thr 4325 | 4330 | 4335 |
| Lys Val Val Asp Leu Asp Pro Cys Leu Ser Lys Lys Pro Leu Glu Glu 4340 | 4345 | 4350 |
| Lys Pro Ser Gln Pro Tyr Ser Ala Arg Glu Ser Leu Ser Glu Val Gln 4355 | 4360 | 4365 |
| Ser Leu Ser Ser Phe Gln Ser Glu Ser Cys Asp Asp Asn Gly Tyr His 4370 | 4375 | 4380 |
| Trp Asp Thr Ser Asp Trp Met Pro Ser Val Pro Leu Pro Asp Ile Gln 4385 | 4390 | 4395 4400 |
| Glu Phe Pro Asn Tyr Glu Val Ile Asp Glu Gln Thr Pro Leu Tyr Ser 4405 | 4410 | 4415 |
| Ala Asp Pro Asn Ala Ile Asp Thr Asp Tyr Tyr Pro Gly Gly Tyr Asp 4420 | 4425 | 4430 |
| Ile Glu Ser Asp Phe Pro Pro Pro Pro Glu Asp Phe Pro Ala Ala Asp 4435 | 4440 | 4445 |
| Glu Leu Pro Pro Leu Pro Pro Glu Phe Ser Asn Gln Phe Glu Ser Ile 4450 | 4455 | 4460 |
| His Pro Pro Arg Asp Met Pro Ala Ala Gly Ser Leu Gly Ser Ser Ser | | |

4465 4470 4475 4480
 Arg Asn Arg Gln Arg Phe Asn Leu Asn Gln Tyr Leu Pro Asn Phe Tyr
 4485 4490 4495
 Pro Leu Asp Met Ser Glu Pro Gln Thr Lys Gly Thr Gly Glu Asn Ser
 4500 4505 4510
 Thr Cys Arg Glu Pro His Ala Pro Tyr Pro Pro Gly Tyr Gln Arg His
 4515 4520 4525
 Phe Glu Ala Pro Ala Val Glu Ser Met Pro Met Ser Val Tyr Ala Ser
 4530 4535 4540
 Thr Ala Ser Cys Ser Asp Val Ser Ala Cys Cys Glu Val Glu Ser Glu
 4545 4550 4555 4560
 Val Met Met Ser Asp Tyr Glu Ser Gly Asp Asp Gly His Phe Glu Glu
 4565 4570 4575
 Val Thr Ile Pro Pro Leu Asp Ser Gln Gln His Thr Glu Val
 4580 4585 4590

<210> 22
 <211> 2991
 <212> PRT
 <213> Homo sapiens

<400> 22
 Met Glu Thr Asp Pro Val Asn His Met Val Gly Val Ile Ser Val Glu
 1 5 10 15
 Gly Arg Pro Gly Leu Phe Trp Phe Asn Ile Ser Gly Gly Asp Lys Asp
 20 25 30
 Met Asp Phe Asp Ile Glu Lys Thr Thr Gly Ser Ile Val Ile Ala Arg
 35 40 45
 Pro Leu Asp Thr Arg Arg Arg Ser Asn Tyr Asn Leu Thr Val Glu Val
 50 55 60
 Thr Asp Gly Ser Arg Thr Ile Ala Thr Gln Val His Ile Phe Met Ile
 65 70 75 80
 Ala Asn Ile Asn His His Arg Pro Gln Phe Leu Glu Thr Arg Tyr Glu
 85 90 95
 Val Arg Val Pro Gln Asp Thr Val Pro Gly Val Glu Leu Leu Arg Val
 100 105 110
 Gln Ala Ile Asp Gln Asp Lys Gly Lys Ser Leu Ile Tyr Thr Ile His
 115 120 125
 Gly Ser Gln Asp Pro Gly Ser Ala Ser Leu Phe Gln Leu Asp Pro Ser
 130 135 140

Ser Gly Val Leu Val Thr Val Gly Lys Leu Asp Leu Gly Ser Gly Pro
 145 150 155 160
 Ser Gln His Thr Leu Thr Val Met Val Arg Asp Gln Glu Ile Pro Ile
 165 170 175
 Lys Arg Asn Phe Val Trp Val Thr Ile His Val Glu Asp Gly Asn Leu
 180 185 190
 His Pro Pro Arg Phe Thr Gln Leu His Tyr Glu Ala Ser Val Pro Asp
 195 200 205
 Thr Ile Ala Pro Gly Thr Glu Leu Leu Gln Val Arg Ala Met Asp Ala
 210 215 220
 Asp Arg Gly Val Asn Ala Glu Val His Tyr Ser Leu Leu Lys Gly Asn
 225 230 235 240
 Ser Glu Gly Phe Phe Asn Ile Asn Ala Leu Leu Gly Ile Ile Thr Leu
 245 250 255
 Ala Gln Lys Leu Asp Gln Ala Asn His Ala Pro His Thr Leu Thr Val
 260 265 270
 Lys Ala Glu Asp Gln Gly Ser Pro Gln Trp His Asp Leu Ala Thr Val
 275 280 285
 Ile Ile His Val Tyr Pro Ser Asp Arg Ser Ala Pro Ile Phe Ser Lys
 290 295 300
 Ser Glu Tyr Phe Val Glu Ile Pro Glu Ser Ile Pro Val Gly Ser Pro
 305 310 315 320
 Ile Leu Leu Val Ser Ala Met Ser Pro Ser Glu Val Thr Tyr Glu Leu
 325 330 335
 Arg Glu Gly Asn Lys Asp Gly Val Phe Ser Met Asn Ser Tyr Ser Gly
 340 345 350
 Leu Ile Ser Thr Gln Lys Lys Leu Asp His Glu Lys Ile Ser Ser Tyr
 355 360 365
 Gln Leu Lys Ile Arg Gly Ser Asn Met Ala Gly Ala Phe Thr Asp Val
 370 375 380
 Met Val Val Val Asp Ile Ile Asp Glu Asn Asp Asn Ala Pro Met Phe
 385 390 395 400
 Leu Lys Ser Thr Phe Val Gly Gln Ile Ser Glu Ala Ala Pro Leu Tyr
 405 410 415
 Ser Met Ile Met Asp Lys Asn Asn Asn Pro Phe Val Ile His Ala Ser
 420 425 430
 Asp Ser Asp Lys Glu Ala Asn Ser Leu Leu Val Tyr Lys Ile Leu Glu
 435 440 445

Pro Glu Ala Leu Lys Phe Phe Lys Ile Asp Pro Ser Met Gly Thr Leu
 450 455 460
 Thr Ile Val Ser Glu Met Asp Tyr Glu Ser Met Pro Ser Phe Gln Phe
 465 470 475 480
 Cys Val Tyr Val His Asp Gln Gly Ser Pro Val Leu Phe Ala Pro Arg
 485 490 495
 Pro Ala Gln Val Ile Ile His Val Arg Asp Val Asn Asp Ser Pro Pro
 500 505 510
 Arg Phe Ser Glu Gln Ile Tyr Glu Val Ala Ile Val Gly Pro Ile His
 515 520 525
 Pro Gly Met Glu Leu Leu Met Val Arg Ala Ser Asp Glu Asp Ser Glu
 530 535 540
 Val Asn Tyr Ser Ile Lys Thr Gly Asn Ala Asp Glu Ala Val Thr Ile
 545 550 555 560
 His Pro Val Thr Gly Ser Ile Ser Val Leu Asn Pro Ala Phe Leu Gly
 565 570 575
 Leu Ser Arg Lys Leu Thr Ile Arg Ala Ser Asp Gly Leu Tyr Gln Asp
 580 585 590
 Thr Ala Leu Val Lys Ile Ser Leu Thr Gln Val Leu Asp Lys Ser Leu
 595 600 605
 Gln Phe Asp Gln Asp Val Tyr Trp Ala Ala Val Lys Glu Asn Leu Gln
 610 615 620
 Asp Arg Lys Ala Leu Val Ile Leu Gly Ala Gln Gly Asn His Leu Asn
 625 630 635 640
 Asp Thr Leu Ser Tyr Phe Leu Leu Asn Gly Thr Asp Met Phe His Met
 645 650 655
 Val Gln Ser Ala Gly Val Leu Gln Thr Arg Gly Val Ala Phe Asp Arg
 660 665 670
 Glu Gln Gln Asp Thr His Glu Leu Ala Val Glu Val Arg Asp Asn Arg
 675 680 685
 Thr Pro Gln Arg Val Ala Gln Gly Leu Val Arg Val Ser Ile Glu Asp
 690 695 700
 Val Asn Asp Asn Pro Pro Lys Phe Lys His Leu Pro Tyr Tyr Thr Ile
 705 710 715 720
 Ile Gln Asp Gly Thr Glu Pro Gly Asp Val Leu Phe Gln Val Ser Ala
 725 730 735
 Thr Asp Glu Asp Leu Gly Thr Asn Gly Ala Val Thr Tyr Glu Phe Ala
 740 745 750

Glu Asp Tyr Thr Tyr Phe Arg Ile Asp Pro Tyr Leu Gly Asp Ile Ser
 755 760 765
 Leu Lys Lys Pro Phe Asp Tyr Gln Ala Leu Asn Lys Tyr His Leu Lys
 770 775 780
 Val Ile Ala Arg Asp Gly Gly Thr Pro Ser Leu Gln Ser Glu Glu Glu
 785 790 795 800
 Val Leu Val Thr Val Arg Asn Lys Ser Asn Pro Leu Phe Gln Ser Pro
 805 810 815
 Tyr Tyr Lys Val Arg Val Pro Glu Asn Ile Thr Leu Tyr Thr Pro Ile
 820 825 830
 Leu His Thr Gln Ala Arg Ser Pro Glu Gly Leu Arg Leu Ile Tyr Asn
 835 840 845
 Ile Val Glu Glu Glu Pro Leu Met Leu Phe Thr Thr Asp Phe Lys Thr
 850 855 860
 Gly Val Leu Thr Val Thr Gly Pro Leu Asp Tyr Glu Ser Lys Thr Lys
 865 870 875 880
 His Val Phe Thr Val Arg Ala Thr Asp Thr Ala Leu Gly Ser Phe Ser
 885 890 895
 Glu Ala Thr Val Glu Val Leu Val Glu Asp Val Asn Asp Asn Pro Pro
 900 905 910
 Thr Phe Ser Gln Leu Val Tyr Thr Thr Ser Ile Ser Glu Gly Leu Pro
 915 920 925
 Ala Gln Thr Pro Val Ile Gln Leu Leu Ala Ser Asp Gln Asp Ser Gly
 930 935 940
 Arg Asn Arg Asp Val Ser Tyr Gln Ile Val Glu Asp Gly Ser Asp Val
 945 950 955 960
 Ser Lys Phe Phe Gln Ile Asn Gly Ser Thr Gly Glu Met Ser Thr Val
 965 970 975
 Gln Glu Leu Asp Tyr Glu Ala Gln Gln His Phe His Val Lys Val Arg
 980 985 990
 Ala Met Asp Lys Gly Asp Pro Pro Leu Thr Gly Glu Thr Leu Val Val
 995 1000 1005
 Val Asn Val Ser Asp Ile Asn Asp Asn Pro Pro Glu Phe Arg Gln Pro
 1010 1015 1020
 Gln Tyr Glu Ala Asn Val Ser Glu Leu Ala Thr Cys Gly His Leu Val
 1025 1030 1035 1040
 Leu Lys Val Gln Ala Ile Asp Pro Asp Ser Arg Asp Thr Ser Arg Leu
 1045 1050 1055

Glu Tyr Leu Ile Leu Ser Gly Asn Gln Asp Arg His Phe Phe Ile Asn
 1060 1065 1070
 Ser Ser Ser Gly Ile Ile Ser Met Phe Asn Leu Cys Lys Lys His Leu
 1075 1080 1085
 Asp Ser Ser Tyr Asn Leu Arg Val Gly Ala Ser Asp Gly Val Phe Arg
 1090 1095 1100
 Ala Thr Val Pro Val Tyr Ile Asn Thr Thr Asn Ala Asn Lys Tyr Ser
 1105 1110 1115 1120
 Pro Glu Phe Gln Gln His Leu Tyr Glu Ala Glu Leu Ala Glu Asn Ala
 1125 1130 1135
 Met Val Gly Thr Lys Val Ile Asp Leu Leu Ala Ile Asp Lys Asp Ser
 1140 1145 1150
 Gly Pro Tyr Gly Thr Ile Asp Tyr Thr Ile Ile Asn Lys Leu Ala Ser
 1155 1160 1165
 Glu Lys Phe Ser Ile Asn Pro Asn Gly Gln Ile Ala Thr Leu Gln Lys
 1170 1175 1180
 Leu Asp Arg Glu Asn Ser Thr Glu Arg Val Ile Ala Ile Lys Val Met
 1185 1190 1195 1200
 Ala Arg Asp Gly Gly Gly Arg Val Ala Phe Cys Thr Val Lys Ile Ile
 1205 1210 1215
 Leu Thr Asp Glu Asn Asp Asn Pro Pro Gln Phe Lys Ala Ser Glu Tyr
 1220 1225 1230
 Thr Val Ser Ile Gln Ser Asn Val Ser Lys Asp Ser Pro Val Ile Gln
 1235 1240 1245
 Val Leu Ala Tyr Asp Ala Asp Glu Gly Gln Asn Ala Asp Val Thr Tyr
 1250 1255 1260
 Ser Val Asn Pro Glu Asp Leu Val Lys Asp Val Ile Glu Ile Asn Pro
 1265 1270 1275 1280
 Val Thr Gly Val Val Lys Val Lys Asp Ser Leu Val Gly Leu Glu Asn
 1285 1290 1295
 Gln Thr Leu Asp Phe Phe Ile Lys Ala Gln Asp Gly Gly Pro Pro His
 1300 1305 1310
 Trp Asn Ser Leu Val Pro Val Arg Leu Gln Val Val Pro Lys Lys Val
 1315 1320 1325
 Ser Leu Pro Lys Phe Ser Glu Pro Leu Tyr Thr Phe Ser Ala Pro Glu
 1330 1335 1340
 Asp Leu Pro Glu Gly Ser Glu Ile Gly Ile Val Lys Ala Val Ala Ala
 1345 1350 1355 1360

Gln Asp Pro Val Ile Tyr Ser Leu Val Arg Gly Thr Thr Pro Glu Ser
 1365 1370 1375

Asn Lys Asp Gly Val Phe Ser Leu Asp Pro Asp Thr Gly Val Ile Lys
 1380 1385 1390

Val Arg Lys Pro Met Asp His Glu Ser Thr Lys Leu Tyr Gln Ile Asp
 1395 1400 1405

Val Met Ala His Cys Leu Gln Asn Thr Asp Val Val Ser Leu Val Ser
 1410 1415 1420

Val Asn Ile Gln Val Gly Asp Val Asn Asp Asn Arg Pro Val Phe Glu
 1425 1430 1435 1440

Ala Asp Pro Tyr Lys Ala Val Leu Thr Glu Asn Met Pro Val Gly Thr
 1445 1450 1455

Ser Val Ile Gln Val Thr Ala Ile Asp Lys Asp Thr Gly Arg Asp Gly
 1460 1465 1470

Gln Val Ser Tyr Arg Leu Ser Ala Asp Pro Gly Ser Asn Val His Glu
 1475 1480 1485

Leu Phe Ala Ile Asp Ser Glu Ser Gly Trp Ile Thr Thr Leu Gln Glu
 1490 1495 1500

Leu Asp Cys Glu Thr Cys Gln Thr Tyr His Phe His Val Val Ala Tyr
 1505 1510 1515 1520

Asp His Gly Gln Thr Ile Gln Leu Ser Ser Gln Ala Leu Val Gln Val
 1525 1530 1535

Ser Ile Thr Asp Glu Asn Asp Asn Ala Pro Arg Phe Ala Ser Glu Glu
 1540 1545 1550

Tyr Arg Gly Ser Val Val Glu Asn Ser Glu Pro Gly Glu Leu Val Ala
 1555 1560 1565

Thr Leu Lys Thr Leu Asp Ala Asp Ile Ser Glu Gln Asn Arg Gln Val
 1570 1575 1580

Thr Cys Tyr Ile Thr Glu Gly Asp Pro Leu Gly Gln Phe Gly Ile Ser
 1585 1590 1595 1600

Gln Val Gly Asp Glu Trp Arg Ile Ser Ser Arg Lys Thr Leu Asp Arg
 1605 1610 1615

Glu His Thr Ala Lys Tyr Leu Leu Arg Val Thr Ala Ser Asp Gly Lys
 1620 1625 1630

Phe Gln Ala Ser Val Thr Val Glu Ile Phe Val Leu Asp Val Asn Asp
 1635 1640 1645

Asn Ser Pro Gln Cys Ser Gln Leu Leu Tyr Thr Gly Lys Val His Glu
 1650 1655 1660

Asp Val Phe Pro Gly His Phe Ile Leu Lys Val Ser Ala Thr Asp Leu
 1665 1670 1675 1680

Asp Thr Asp Thr Asn Ala Gln Ile Thr Tyr Ser Leu His Gly Pro Gly
 1685 1690 1695

Ala His Glu Phe Lys Leu Asp Pro His Thr Gly Glu Leu Thr Thr Leu
 1700 1705 1710

Thr Ala Leu Asp Arg Glu Arg Lys Asp Val Phe Asn Leu Val Ala Lys
 1715 1720 1725

Ala Thr Asp Gly Gly Gly Arg Ser Cys Gln Ala Asp Ile Thr Leu His
 1730 1735 1740

Val Glu Asp Val Asn Asp Asn Ala Pro Arg Phe Phe Pro Ser His Cys
 1745 1750 1755 1760

Ala Val Ala Val Phe Asp Asn Thr Thr Val Lys Thr Pro Val Ala Val
 1765 1770 1775

Val Phe Ala Arg Asp Pro Asp Gln Gly Ala Asn Ala Gln Val Val Tyr
 1780 1785 1790

Ser Leu Pro Asp Ser Ala Glu Gly His Phe Ser Ile Asp Ala Thr Thr
 1795 1800 1805

Gly Val Ile Arg Leu Glu Lys Pro Leu Gln Val Arg Pro Gln Ala Pro
 1810 1815 1820

Leu Glu Leu Thr Val Arg Ala Ser Asp Leu Gly Thr Pro Ile Pro Leu
 1825 1830 1835 1840

Ser Thr Leu Gly Thr Val Thr Val Ser Val Val Gly Leu Glu Asp Tyr
 1845 1850 1855

Leu Pro Val Phe Leu Asn Thr Glu His Ser Val Gln Val Pro Glu Asp
 1860 1865 1870

Ala Pro Pro Gly Thr Glu Val Leu Gln Leu Ala Thr Leu Thr Arg Pro
 1875 1880 1885

Gly Ala Glu Lys Thr Gly Tyr Arg Val Val Ser Gly Asn Glu Gln Gly
 1890 1895 1900

Arg Phe Arg Leu Asp Ala Arg Thr Gly Ile Leu Tyr Val Asn Ala Ser
 1905 1910 1915 1920

Leu Asp Phe Glu Thr Ser Pro Lys Tyr Phe Leu Ser Ile Glu Cys Ser
 1925 1930 1935

Arg Lys Ser Ser Ser Ser Leu Ser Asp Val Thr Thr Val Met Val Asn
 1940 1945 1950

Ile Thr Asp Val Asn Glu His Arg Pro Gln Phe Pro Gln Asp Pro Tyr
 1955 1960 1965

Ser Thr Arg Val Leu Glu Asn Ala Leu Val Gly Asp Val Ile Leu Thr
 1970 1975 1980
 Val Ser Ala Thr Asp Glu Asp Gly Pro Leu Asn Ser Asp Ile Thr Tyr
 1985 1990 1995 2000
 Ser Leu Ile Gly Gly Asn Gln Leu Gly His Phe Thr Ile His Pro Lys
 2005 2010 2015
 Lys Gly Glu Leu Gln Val Ala Lys Ala Leu Asp Arg Glu Gln Ala Ser
 2020 2025 2030
 Ser Tyr Ser Leu Lys Leu Arg Ala Thr Asp Ser Gly Gln Pro Pro Leu
 2035 2040 2045
 His Glu Asp Thr Asp Ile Ala Ile Gln Val Ala Asp Val Asn Asp Asn
 2050 2055 2060
 Pro Pro Arg Phe Phe Gln Leu Asn Tyr Ser Thr Thr Val Gln Glu Asn
 2065 2070 2075 2080
 Ser Pro Ile Gly Ser Lys Val Leu Gln Leu Ile Leu Ser Asp Pro Asp
 2085 2090 2095
 Ser Pro Glu Asn Gly Pro Pro Tyr Ser Phe Arg Ile Thr Lys Gly Asn
 2100 2105 2110
 Asn Gly Ser Ala Phe Arg Val Thr Pro Asp Gly Trp Leu Val Thr Ala
 2115 2120 2125
 Glu Gly Leu Ser Arg Arg Ala Gln Glu Trp Tyr Gln Leu Gln Ile Gln
 2130 2135 2140
 Ala Ser Asp Ser Gly Ile Pro Pro Leu Ser Ser Leu Thr Ser Val Arg
 2145 2150 2155 2160
 Val His Val Thr Glu Gln Ser His Tyr Ala Pro Ser Ala Leu Pro Leu
 2165 2170 2175
 Glu Ile Phe Ile Thr Val Gly Glu Asp Glu Phe Gln Gly Gly Met Val
 2180 2185 2190
 Gly Lys Ile His Ala Thr Asp Arg Asp Pro Gln Asp Thr Leu Thr Tyr
 2195 2200 2205
 Ser Leu Ala Glu Glu Glu Thr Leu Gly Arg His Phe Ser Val Gly Ala
 2210 2215 2220
 Pro Asp Gly Lys Ile Ile Ala Ala Gln Gly Leu Pro Arg Gly His Tyr
 2225 2230 2235 2240
 Ser Phe Asn Val Thr Val Ser Asp Gly Thr Phe Thr Thr Thr Ala Gly
 2245 2250 2255
 Val His Val Tyr Val Trp His Val Gly Gln Glu Ala Leu Gln Gln Ala
 2260 2265 2270

Met Trp Met Gly Phe Tyr Gln Leu Thr Pro Glu Glu Leu Val Ser Asp
 2275 2280 2285

His Trp Arg Asn Leu Gln Arg Phe Leu Ser His Lys Leu Asp Ile Lys
 2290 2295 2300

Arg Ala Asn Ile His Leu Ala Ser Leu Gln Pro Ala Glu Ala Val Ala
 2305 2310 2315 2320

Gly Val Asp Val Leu Leu Val Phe Glu Gly His Ser Gly Thr Phe Tyr
 2325 2330 2335

Glu Phe Gln Glu Leu Ala Ser Ile Ile Thr His Ser Ala Lys Glu Met
 2340 2345 2350

Glu His Ser Val Gly Val Gln Met Arg Ser Ala Met Pro Met Val Pro
 2355 2360 2365

Cys Gln Gly Pro Thr Cys Gln Gly Gln Ile Cys His Asn Thr Val His
 2370 2375 2380

Leu Asp Pro Lys Val Gly Pro Thr Tyr Ser Thr Ala Arg Leu Ser Ile
 2385 2390 2395 2400

Leu Thr Pro Arg His His Leu Gln Arg Ser Cys Ser Cys Asn Gly Thr
 2405 2410 2415

Ala Thr Arg Phe Ser Gly Gln Ser Tyr Val Arg Tyr Arg Ala Pro Ala
 2420 2425 2430

Ala Arg Asn Trp His Ile His Phe Tyr Leu Lys Thr Leu Gln Pro Gln
 2435 2440 2445

Ala Ile Leu Leu Phe Thr Asn Glu Thr Ala Ser Val Ser Leu Lys Leu
 2450 2455 2460

Ala Ser Gly Val Pro Gln Leu Glu Tyr His Cys Leu Gly Gly Phe Tyr
 2465 2470 2475 2480

Gly Asn Leu Ser Ser Gln Arg His Val Asn Asp His Glu Trp His Ser
 2485 2490 2495

Ile Leu Val Glu Glu Met Asp Ala Ser Ile Arg Leu Met Val Asp Ser
 2500 2505 2510

Met Gly Asn Thr Ser Leu Val Val Pro Glu Asn Cys Arg Gly Leu Arg
 2515 2520 2525

Pro Glu Arg His Leu Leu Leu Gly Gly Leu Ile Leu Leu His Ser Ser
 2530 2535 2540

Ser Asn Val Ser Gln Gly Phe Glu Gly Cys Leu Asp Ala Val Val Val
 2545 2550 2555 2560

Asn Glu Glu Ala Leu Asp Leu Leu Ala Pro Gly Lys Thr Val Ala Gly
 2565 2570 2575

Leu Leu Glu Thr Gln Ala Leu Thr Gln Cys Cys Leu His Ser Asp Tyr
 2580 2585 2590

Cys Ser Gln Asn Thr Cys Leu Asn Gly Gly Lys Cys Ser Trp Thr His
 2595 2600 2605

Gly Ala Gly Tyr Val Cys Lys Cys Pro Pro Gln Phe Ser Gly Lys His
 2610 2615 2620

Cys Glu Gln Gly Arg Glu Asn Cys Thr Phe Ala Pro Cys Leu Glu Gly
 2625 2630 2635 2640

Gly Thr Cys Ile Leu Ser Pro Lys Gly Ala Ser Cys Asn Cys Pro His
 2645 2650 2655

Pro Tyr Thr Gly Asp Arg Cys Glu Met Glu Ala Arg Gly Cys Ser Glu
 2660 2665 2670

Gly His Cys Leu Val Thr Pro Glu Ile Gln Arg Gly Asp Trp Gly Gln
 2675 2680 2685

Gln Glu Leu Leu Ile Ile Thr Val Ala Val Ala Phe Ile Ile Ile Ser
 2690 2695 2700

Thr Val Gly Leu Leu Phe Tyr Cys Arg Arg Cys Lys Ser His Lys Pro
 2705 2710 2715 2720

Val Ala Met Glu Asp Pro Asp Leu Leu Ala Arg Ser Val Gly Val Asp
 2725 2730 2735

Thr Gln Ala Met Pro Ala Ile Glu Leu Asn Pro Leu Ser Ala Ser Ser
 2740 2745 2750

Cys Asn Asn Leu Asn Gln Pro Glu Pro Ser Lys Ala Ser Val Pro Asn
 2755 2760 2765

Glu Leu Val Thr Phe Gly Pro Asn Ser Lys Gln Arg Pro Val Val Cys
 2770 2775 2780

Ser Val Pro Pro Arg Leu Pro Pro Ala Ala Val Pro Ser His Ser Asp
 2785 2790 2795 2800

Asn Glu Pro Val Ile Lys Arg Thr Trp Ser Ser Glu Glu Met Val Tyr
 2805 2810 2815

Pro Gly Gly Ala Met Val Trp Pro Pro Thr Tyr Ser Arg Asn Glu Arg
 2820 2825 2830

Trp Glu Tyr Pro His Ser Glu Val Thr Gln Gly Pro Leu Pro Pro Ser
 2835 2840 2845

Ala His Arg His Ser Thr Pro Val Val Met Pro Glu Pro Asn Gly Leu
 2850 2855 2860

Tyr Gly Gly Phe Pro Phe Pro Leu Glu Met Glu Asn Lys Arg Ala Pro
 2865 2870 2875 2880

Leu Pro Pro Arg Tyr Ser Asn Gln Asn Leu Glu Asp Leu Met Pro Ser
2885 2890 2895

Arg Pro Pro Ser Pro Arg Glu Arg Leu Val Ala Pro Cys Leu Asn Glu
2900 2905 2910

Tyr Thr Ala Ile Ser Tyr Tyr His Ser Gln Phe Arg Gln Gly Gly Gly
2915 2920 2925

Gly Pro Cys Leu Ala Asp Gly Gly Tyr Lys Gly Val Gly Met Arg Leu
2930 2935 2940

Ser Arg Ala Gly Pro Ser Tyr Ala Val Cys Glu Val Glu Gly Ala Pro
2945 2950 2955 2960

Leu Ala Gly Gln Gly Gln Pro Arg Val Pro Pro Asn Tyr Glu Gly Ser
2965 2970 2975

Asp Met Val Glu Ser Asp Tyr Gly Ser Cys Glu Glu Val Met Phe
2980 2985 2990

<210> 23

<211> 928

<212> PRT

<213> Homo sapiens

<400> 23

His Cys Gln Glu Asp Gly Ile Met Leu Ser Ala Asp Cys Ser Glu Leu
1 5 10 15

Gly Leu Ser Ala Val Pro Gly Asp Leu Asp Pro Leu Thr Ala Tyr Leu
20 25 30

Asp Leu Ser Met Asn Asn Leu Thr Glu Leu Gln Pro Gly Leu Phe His
35 40 45

His Leu Arg Phe Leu Glu Glu Leu Arg Leu Ser Gly Asn His Leu Ser
50 55 60

His Ile Pro Gly Gln Ala Phe Ser Gly Leu Tyr Ser Leu Lys Ile Leu
65 70 75 80

Met Leu Gln Asn Asn Gln Leu Gly Gly Ile Pro Ala Glu Ala Leu Trp
85 90 95

Glu Leu Pro Ser Leu Gln Ser Leu Arg Leu Asp Ala Asn Leu Ile Ser
100 105 110

Leu Val Pro Glu Arg Ser Phe Glu Gly Leu Ser Ser Leu Arg His Leu
115 120 125

Trp Leu Asp Asp Asn Ala Leu Thr Glu Ile Pro Val Arg Ala Leu Asn
130 135 140

Asn Leu Pro Ala Leu Gln Ala Met Thr Leu Ala Leu Asn Arg Ile Ser
145 150 155 160

His Ile Pro Asp Tyr Ala Phe Gln Asn Leu Thr Ser Leu Val Val Leu
 165 170 175

His Leu His Asn Asn Arg Ile Gln His Leu Gly Thr His Ser Phe Glu
 180 185 190

Gly Leu His Asn Leu Glu Thr Leu Asp Leu Asn Tyr Asn Lys Leu Gln
 195 200 205

Glu Phe Pro Val Ala Ile Arg Thr Leu Gly Arg Leu Gln Glu Leu Gly
 210 215 220

Phe His Asn Asn Asn Ile Lys Ala Ile Pro Glu Lys Ala Phe Met Gly
 225 230 235 240

Asn Pro Leu Leu Gln Thr Ile His Phe Tyr Asp Asn Pro Ile Gln Phe
 245 250 255

Val Gly Arg Ser Ala Phe Gln Tyr Leu Pro Lys Leu His Thr Leu Ser
 260 265 270

Leu Asn Gly Ala Met Asp Ile Gln Glu Phe Pro Asp Leu Lys Gly Thr
 275 280 285

Thr Ser Leu Glu Ile Leu Thr Leu Thr Arg Ala Gly Ile Arg Leu Leu
 290 295 300

Pro Ser Gly Met Cys Gln Gln Leu Pro Arg Leu Arg Val Leu Glu Leu
 305 310 315 320

Ser His Asn Gln Ile Glu Glu Leu Pro Ser Leu His Arg Cys Gln Lys
 325 330 335

Leu Glu Glu Ile Gly Leu Gln His Asn Arg Ile Trp Glu Ile Gly Ala
 340 345 350

Asp Thr Phe Ser Gln Leu Ser Ser Leu Gln Ala Leu Asp Leu Ser Trp
 355 360 365

Asn Ala Ile Arg Ser Ile His Pro Glu Ala Phe Ser Thr Leu His Ser
 370 375 380

Leu Val Lys Leu Asp Leu Thr Asp Asn Gln Leu Thr Thr Leu Pro Leu
 385 390 395 400

Ala Gly Leu Gly Gly Leu Met His Leu Lys Leu Lys Gly Asn Leu Ala
 405 410 415

Leu Ser Gln Ala Phe Ser Lys Asp Ser Phe Pro Lys Leu Arg Ile Leu
 420 425 430

Glu Val Pro Tyr Ala Tyr Gln Cys Cys Pro Tyr Gly Met Cys Ala Ser
 435 440 445

Phe Phe Lys Ala Ser Gly Gln Trp Glu Ala Glu Asp Leu His Leu Asp
 450 455 460

Asp Glu Glu Ser Ser Lys Arg Pro Leu Gly Leu Leu Ala Arg Gln Ala
 465 470 475 480
 Glu Asn His Tyr Asp Gln Asp Leu Asp Glu Leu Gln Leu Glu Met Glu
 485 490 495
 Asp Ser Lys Pro His Pro Ser Val Gln Cys Ser Pro Thr Pro Gly Pro
 500 505 510
 Phe Lys Pro Cys Glu Tyr Leu Phe Glu Ser Trp Gly Ile Arg Leu Ala
 515 520 525
 Val Trp Ala Ile Val Leu Leu Ser Val Leu Cys Asn Gly Leu Val Leu
 530 535 540
 Leu Thr Val Phe Ala Gly Gly Pro Ala Pro Leu Pro Pro Val Lys Phe
 545 550 555 560
 Val Val Gly Ala Ile Ala Gly Ala Asn Thr Leu Thr Gly Ile Ser Cys
 565 570 575
 Gly Leu Leu Ala Ser Val Asp Ala Leu Thr Phe Gly Gln Phe Ser Glu
 580 585 590
 Tyr Gly Ala Arg Trp Glu Thr Gly Leu Gly Cys Arg Ala Thr Gly Phe
 595 600 605
 Leu Ala Val Leu Gly Ser Glu Ala Ser Val Leu Leu Leu Thr Leu Ala
 610 615 620
 Ala Val Gln Cys Ser Val Ser Val Ser Cys Val Arg Ala Tyr Gly Lys
 625 630 635 640
 Ser Pro Ser Leu Gly Ser Val Arg Ala Gly Val Leu Gly Cys Leu Ala
 645 650 655
 Leu Ala Gly Leu Ala Ala Ala Leu Pro Leu Ala Ser Val Gly Glu Tyr
 660 665 670
 Gly Ala Ser Pro Leu Cys Leu Pro Tyr Ala Pro Pro Glu Gly Gln Pro
 675 680 685
 Ala Ala Leu Gly Phe Thr Val Ala Leu Val Met Met Asn Ser Phe Cys
 690 695 700
 Phe Leu Val Val Ala Gly Ala Tyr Ile Lys Leu Tyr Cys Asp Leu Pro
 705 710 715 720
 Arg Gly Asp Phe Glu Ala Val Trp Asp Cys Ala Met Val Arg His Val
 725 730 735
 Ala Trp Leu Ile Phe Ala Asp Gly Leu Leu Tyr Cys Pro Val Ala Phe
 740 745 750
 Leu Ser Phe Ala Ser Met Leu Gly Leu Phe Pro Val Thr Pro Glu Ala
 755 760 765

Val Lys Ser Val Leu Leu Val Val Leu Pro Leu Pro Ala Cys Leu Asn
 770 775 780
 Pro Leu Leu Tyr Leu Leu Phe Asn Pro His Phe Arg Asp Asp Leu Arg
 785 790 795 800
 Arg Leu Arg Pro Arg Ala Gly Asp Ser Gly Pro Leu Ala Tyr Ala Ala
 805 810 815
 Ala Gly Glu Leu Glu Lys Ser Ser Cys Asp Ser Thr Gln Ala Leu Val
 820 825 830
 Ala Phe Ser Asp Val Asp Leu Ile Leu Glu Ala Ser Glu Ala Gly Arg
 835 840 845
 Pro Pro Gly Leu Glu Thr Tyr Gly Phe Pro Ser Val Thr Leu Ile Ser
 850 855 860
 Cys Gln Gln Pro Gly Ala Pro Arg Leu Glu Gly Ser His Cys Val Glu
 865 870 875 880
 Pro Glu Gly Asn His Phe Gly Asn Pro Gln Pro Ser Met Asp Gly Glu
 885 890 895
 Leu Leu Leu Arg Ala Glu Gly Ser Thr Pro Ala Gly Gly Gly Leu Ser
 900 905 910
 Gly Gly Gly Gly Phe Gln Pro Ser Gly Leu Ala Phe Ala Ser His Val
 915 920 925

<210> 24
 <211> 893
 <212> PRT
 <213> Homo sapiens

<400> 24
 Met Asn Asn Leu Thr Glu Leu Gln Pro Gly Leu Phe His His Leu Arg
 1 5 10 15
 Phe Leu Glu Glu Leu Arg Leu Ser Gly Asn His Leu Ser His Ile Pro
 20 25 30
 Gly Gln Ala Phe Ser Gly Leu Tyr Ser Leu Lys Ile Leu Met Leu Gln
 35 40 45
 Asn Asn Gln Leu Gly Gly Ile Pro Ala Glu Ala Leu Trp Glu Leu Pro
 50 55 60
 Ser Leu Gln Ser Leu Arg Leu Asp Ala Asn Leu Ile Ser Leu Val Pro
 65 70 75 80
 Glu Arg Ser Phe Glu Gly Leu Ser Ser Leu Arg His Leu Trp Leu Asp

| 85 | | | | | 90 | | | | | 95 | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Asp | Asn | Ala | Leu | Thr | Glu | Ile | Pro | Val | Arg | Ala | Leu | Asn | Asn | Leu | Pro | |
| 100 | | | | | 105 | | | | | 110 | | | | | | |
| Ala | Leu | Gln | Ala | Met | Thr | Leu | Ala | Leu | Asn | Arg | Ile | Ser | His | Ile | Pro | |
| 115 | | | | | 120 | | | | | 125 | | | | | | |
| Asp | Tyr | Ala | Phe | Gln | Asn | Leu | Thr | Ser | Leu | Val | Val | Leu | His | Leu | His | |
| 130 | | | | | 135 | | | | | 140 | | | | | | |
| Asn | Asn | Arg | Ile | Gln | His | Leu | Gly | Thr | His | Ser | Phe | Glu | Gly | Leu | His | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| Asn | Leu | Glu | Thr | Leu | Asp | Leu | Asn | Tyr | Asn | Lys | Leu | Gln | Glu | Phe | Pro | |
| 165 | | | | | 170 | | | | | 175 | | | | | | |
| Val | Ala | Ile | Arg | Thr | Leu | Gly | Arg | Leu | Gln | Glu | Leu | Gly | Phe | His | Asn | |
| 180 | | | | | 185 | | | | | 190 | | | | | | |
| Asn | Asn | Ile | Lys | Ala | Ile | Pro | Glu | Lys | Ala | Phe | Met | Gly | Asn | Pro | Leu | |
| 195 | | | | | 200 | | | | | 205 | | | | | | |
| Leu | Gln | Thr | Ile | His | Phe | Tyr | Asp | Asn | Pro | Ile | Gln | Phe | Val | Gly | Arg | |
| 210 | | | | | 215 | | | | | 220 | | | | | | |
| Ser | Ala | Phe | Gln | Tyr | Leu | Pro | Lys | Leu | His | Thr | Leu | Ser | Leu | Asn | Gly | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | |
| Ala | Met | Asp | Ile | Gln | Glu | Phe | Pro | Asp | Leu | Lys | Gly | Thr | Thr | Ser | Leu | |
| 245 | | | | | 250 | | | | | 255 | | | | | | |
| Glu | Ile | Leu | Thr | Leu | Thr | Arg | Ala | Gly | Ile | Arg | Leu | Leu | Pro | Ser | Gly | |
| 260 | | | | | 265 | | | | | 270 | | | | | | |
| Met | Cys | Gln | Gln | Leu | Pro | Arg | Leu | Arg | Val | Leu | Glu | Leu | Ser | His | Asn | |
| 275 | | | | | 280 | | | | | 285 | | | | | | |
| Gln | Ile | Glu | Glu | Leu | Pro | Ser | Leu | His | Arg | Cys | Gln | Lys | Leu | Glu | Glu | |
| 290 | | | | | 295 | | | | | 300 | | | | | | |
| Ile | Gly | Leu | Gln | His | Asn | Arg | Ile | Trp | Glu | Ile | Gly | Ala | Asp | Thr | Phe | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | |
| Ser | Gln | Leu | Ser | Ser | Leu | Gln | Ala | Leu | Asp | Leu | Ser | Trp | Asn | Ala | Ile | |
| 325 | | | | | 330 | | | | | 335 | | | | | | |
| Arg | Ser | Ile | His | Pro | Glu | Ala | Phe | Ser | Thr | Leu | His | Ser | Leu | Val | Lys | |
| 340 | | | | | 345 | | | | | 350 | | | | | | |
| Leu | Asp | Leu | Thr | Asp | Asn | Gln | Leu | Thr | Thr | Leu | Pro | Leu | Ala | Gly | Leu | |
| 355 | | | | | 360 | | | | | 365 | | | | | | |
| Gly | Gly | Leu | Met | His | Leu | Lys | Leu | Lys | Gly | Asn | Leu | Ala | Leu | Ser | Gln | |
| 370 | | | | | 375 | | | | | 380 | | | | | | |
| Ala | Phe | Ser | Lys | Asp | Ser | Phe | Pro | Lys | Leu | Arg | Ile | Leu | Glu | Val | Pro | |

| | | | | | | |
|---|-----|-----|--|-----|--|-----|
| 385 | | 390 | | 395 | | 400 |
| Tyr Ala Tyr Gln Cys Cys Pro Tyr Gly Met Cys Ala Ser Phe Phe Lys | | | | | | |
| | 405 | | | 410 | | 415 |
| Ala Ser Gly Gln Trp Glu Ala Glu Asp Leu His Leu Asp Asp Glu Glu | | | | | | |
| | 420 | | | 425 | | 430 |
| Ser Ser Lys Arg Pro Leu Gly Leu Leu Ala Arg Gln Ala Glu Asn His | | | | | | |
| | 435 | | | 440 | | 445 |
| Tyr Asp Gln Asp Leu Asp Glu Leu Gln Leu Glu Met Glu Asp Ser Lys | | | | | | |
| | 450 | | | 455 | | 460 |
| Pro His Pro Ser Val Gln Cys Ser Pro Thr Pro Gly Pro Phe Lys Pro | | | | | | |
| | 465 | | | 470 | | 475 |
| Cys Glu Tyr Leu Phe Glu Ser Trp Gly Ile Arg Leu Ala Val Trp Ala | | | | | | |
| | 485 | | | 490 | | 495 |
| Ile Val Leu Leu Ser Val Leu Cys Asn Gly Leu Val Leu Leu Thr Val | | | | | | |
| | 500 | | | 505 | | 510 |
| Phe Ala Gly Gly Pro Val Pro Leu Pro Pro Val Lys Phe Val Val Gly | | | | | | |
| | 515 | | | 520 | | 525 |
| Ala Ile Ala Gly Ala Asn Thr Leu Thr Gly Ile Ser Cys Gly Leu Leu | | | | | | |
| | 530 | | | 535 | | 540 |
| Ala Ser Val Asp Ala Leu Thr Phe Gly Gln Phe Ser Glu Tyr Gly Ala | | | | | | |
| | 545 | | | 550 | | 555 |
| Arg Trp Glu Thr Gly Leu Gly Cys Arg Ala Thr Gly Phe Leu Ala Val | | | | | | |
| | 565 | | | 570 | | 575 |
| Leu Gly Ser Glu Ala Ser Val Leu Leu Leu Thr Leu Ala Ala Val Gln | | | | | | |
| | 580 | | | 585 | | 590 |
| Cys Ser Val Ser Val Ser Cys Val Arg Ala Tyr Gly Lys Ser Pro Ser | | | | | | |
| | 595 | | | 600 | | 605 |
| Leu Gly Ser Val Arg Ala Gly Val Leu Gly Cys Leu Ala Leu Ala Gly | | | | | | |
| | 610 | | | 615 | | 620 |
| Leu Ala Ala Ala Leu Pro Leu Ala Ser Val Gly Glu Tyr Gly Ala Ser | | | | | | |
| | 625 | | | 630 | | 635 |
| Pro Leu Cys Leu Pro Tyr Ala Pro Pro Glu Gly Gln Pro Ala Ala Leu | | | | | | |
| | 645 | | | 650 | | 655 |
| Gly Phe Thr Val Ala Leu Val Met Met Asn Ser Phe Cys Phe Leu Val | | | | | | |
| | 660 | | | 665 | | 670 |
| Val Ala Gly Ala Tyr Ile Lys Leu Tyr Cys Asp Leu Pro Arg Gly Asp | | | | | | |
| | 675 | | | 680 | | 685 |
| Phe Glu Ala Val Trp Asp Cys Ala Met Val Arg His Val Ala Trp Leu | | | | | | |

690

695

700

Ile Phe Ala Asp Gly Leu Leu Tyr Cys Pro Val Ala Phe Leu Ser Phe
705 710 715 720

Ala Ser Met Leu Gly Leu Phe Pro Val Thr Pro Glu Ala Val Lys Ser
725 730 735

Val Leu Leu Val Val Leu Pro Leu Pro Ala Cys Leu Asn Pro Leu Leu
740 745 750

Tyr Leu Leu Phe Asn Pro His Phe Arg Asp Asp Leu Arg Arg Leu Arg
755 760 765

Pro Arg Ala Gly Asp Ser Gly Pro Leu Ala Tyr Ala Ala Ala Gly Glu
770 775 780

Leu Glu Lys Ser Ser Cys Asp Ser Thr Gln Ala Leu Val Ala Phe Ser
785 790 795 800

Asp Val Asp Leu Ile Leu Glu Ala Ser Glu Ala Gly Arg Pro Pro Gly
805 810 815

Leu Glu Thr Tyr Gly Phe Pro Ser Val Thr Leu Ile Ser Cys Gln Gln
820 825 830

Pro Gly Ala Pro Arg Leu Glu Gly Ser His Cys Val Glu Pro Glu Gly
835 840 845

Asn His Phe Gly Asn Pro Gln Pro Ser Met Asp Gly Glu Leu Leu Leu
850 855 860

Arg Ala Glu Gly Ser Thr Pro Ala Gly Gly Gly Leu Ser Gly Gly Gly
865 870 875 880

Gly Phe Gln Pro Ser Gly Leu Ala Phe Ala Ser His Val
885 890

<210> 25

<211> 828

<212> PRT

<213> Homo sapiens

<400> 25

Met Arg Leu Glu Gly Glu Gly Arg Ser Ala Arg Ala Gly Gln Asn Leu
1 5 10 15

Ser Arg Ala Gly Ser Ala Arg Arg Gly Ala Pro Arg Asp Leu Ser Met
20 25 30

Asn Asn Leu Thr Glu Leu Gln Pro Gly Leu Phe His His Leu Arg Phe
35 40 45

Leu Glu Glu Leu Arg Leu Ser Gly Asn His Leu Ser His Ile Pro Gly
50 55 60

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Ala | Phe | Ser | Gly | Leu | Tyr | Ser | Leu | Lys | Ile | Leu | Met | Leu | Gln | Asn | 65 | 70 | 75 | 80 |
| Asn | Gln | Leu | Gly | Gly | Ile | Pro | Ala | Glu | Ala | Leu | Trp | Glu | Leu | Pro | Ser | 85 | 90 | 95 | |
| Leu | Gln | Ser | Leu | Asp | Leu | Asn | Tyr | Asn | Lys | Leu | Gln | Glu | Phe | Pro | Val | 100 | 105 | 110 | |
| Ala | Ile | Arg | Thr | Leu | Gly | Arg | Leu | Gln | Glu | Leu | Gly | Phe | His | Asn | Asn | 115 | 120 | 125 | |
| Asn | Ile | Lys | Ala | Ile | Pro | Glu | Lys | Ala | Phe | Met | Gly | Asn | Pro | Leu | Leu | 130 | 135 | 140 | |
| Gln | Thr | Ile | His | Phe | Tyr | Asp | Asn | Pro | Ile | Gln | Phe | Val | Gly | Arg | Ser | 145 | 150 | 155 | 160 |
| Ala | Phe | Gln | Tyr | Leu | Pro | Lys | Leu | His | Thr | Leu | Ser | Leu | Asn | Gly | Ala | 165 | 170 | 175 | |
| Met | Asp | Ile | Gln | Glu | Phe | Pro | Asp | Leu | Lys | Gly | Thr | Thr | Ser | Leu | Glu | 180 | 185 | 190 | |
| Ile | Leu | Thr | Leu | Thr | Arg | Ala | Gly | Ile | Arg | Leu | Leu | Pro | Ser | Gly | Met | 195 | 200 | 205 | |
| Cys | Gln | Gln | Leu | Pro | Arg | Leu | Arg | Val | Leu | Glu | Leu | Ser | His | Asn | Gln | 210 | 215 | 220 | |
| Ile | Glu | Glu | Leu | Pro | Ser | Leu | His | Arg | Cys | Gln | Lys | Leu | Glu | Glu | Ile | 225 | 230 | 235 | 240 |
| Gly | Leu | Gln | His | Asn | Arg | Ile | Trp | Glu | Ile | Gly | Ala | Asp | Thr | Phe | Ser | 245 | 250 | 255 | |
| Gln | Leu | Ser | Ser | Leu | Gln | Ala | Leu | Asp | Leu | Ser | Trp | Asn | Ala | Ile | Arg | 260 | 265 | 270 | |
| Ser | Ile | His | Pro | Glu | Ala | Phe | Ser | Thr | Leu | His | Ser | Leu | Val | Lys | Leu | 275 | 280 | 285 | |
| Asp | Leu | Thr | Asp | Asn | Gln | Leu | Thr | Thr | Leu | Pro | Leu | Ala | Gly | Leu | Gly | 290 | 295 | 300 | |
| Gly | Leu | Met | His | Leu | Lys | Leu | Lys | Gly | Asn | Leu | Ala | Leu | Ser | Gln | Ala | 305 | 310 | 315 | 320 |
| Phe | Ser | Lys | Asp | Ser | Phe | Pro | Lys | Leu | Arg | Ile | Leu | Glu | Val | Pro | Tyr | 325 | 330 | 335 | |
| Ala | Tyr | Gln | Cys | Cys | Pro | Tyr | Gly | Met | Cys | Ala | Ser | Phe | Phe | Lys | Ala | 340 | 345 | 350 | |
| Ser | Gly | Gln | Trp | Glu | Ala | Glu | Asp | Leu | His | Leu | Asp | Asp | Glu | Glu | Ser | 355 | 360 | 365 | |

Ser Lys Arg Pro Leu Gly Leu Leu Ala Arg Gln Ala Glu Asn His Tyr
 370 375 380
 Asp Gln Asp Leu Asp Glu Leu Gln Leu Glu Met Glu Asp Ser Lys Pro
 385 390 395 400
 His Pro Ser Val Gln Cys Ser Pro Thr Pro Gly Pro Phe Lys Pro Cys
 405 410 415
 Glu Tyr Leu Phe Glu Ser Trp Gly Ile Arg Leu Ala Val Trp Ala Ile
 420 425 430
 Val Leu Leu Ser Val Leu Cys Asn Gly Leu Val Leu Leu Thr Val Phe
 435 440 445
 Ala Gly Gly Pro Val Pro Leu Pro Pro Val Lys Phe Val Val Gly Ala
 450 455 460
 Ile Ala Gly Ala Asn Thr Leu Thr Gly Ile Ser Cys Gly Leu Leu Ala
 465 470 475 480
 Ser Val Asp Ala Leu Thr Phe Gly Gln Phe Ser Glu Tyr Gly Ala Arg
 485 490 495
 Trp Glu Thr Gly Leu Gly Cys Arg Ala Thr Gly Phe Leu Ala Val Leu
 500 505 510
 Gly Ser Glu Ala Ser Val Leu Leu Leu Thr Leu Ala Ala Val Gln Cys
 515 520 525
 Ser Val Ser Val Ser Cys Val Arg Ala Tyr Gly Lys Ser Pro Ser Leu
 530 535 540
 Gly Ser Val Arg Ala Gly Val Leu Gly Cys Leu Ala Leu Ala Gly Leu
 545 550 555 560
 Ala Ala Ala Leu Pro Leu Ala Ser Val Gly Glu Tyr Gly Ala Ser Pro
 565 570 575
 Leu Cys Leu Pro Tyr Ala Pro Pro Glu Gly Gln Pro Ala Ala Leu Gly
 580 585 590
 Phe Thr Val Ala Leu Val Met Met Asn Ser Phe Cys Phe Leu Val Val
 595 600 605
 Ala Gly Ala Tyr Ile Lys Leu Tyr Cys Asp Leu Pro Arg Gly Asp Phe
 610 615 620
 Glu Ala Val Trp Asp Cys Ala Met Val Arg His Val Ala Trp Leu Ile
 625 630 635 640
 Phe Ala Asp Gly Leu Leu Tyr Cys Pro Val Ala Phe Leu Ser Phe Ala
 645 650 655
 Ser Met Leu Gly Leu Phe Pro Val Thr Pro Glu Ala Val Lys Ser Val
 660 665 670

Leu Leu Val Val Leu Pro Leu Pro Ala Cys Leu Asn Pro Leu Leu Tyr
675 680 685

Leu Leu Phe Asn Pro His Phe Arg Asp Asp Leu Arg Arg Leu Arg Pro
690 695 700

Arg Ala Gly Asp Ser Gly Pro Leu Ala Tyr Ala Ala Ala Gly Glu Leu
705 710 715 720

Glu Lys Ser Ser Cys Asp Ser Thr Gln Ala Leu Val Ala Phe Ser Asp
725 730 735

Val Asp Leu Ile Leu Glu Ala Ser Glu Ala Gly Arg Pro Pro Gly Leu
740 745 750

Glu Thr Tyr Gly Phe Pro Ser Val Thr Leu Ile Ser Cys Gln Gln Pro
755 760 765

Gly Ala Pro Arg Leu Glu Gly Ser His Cys Val Glu Pro Glu Gly Asn
770 775 780

His Phe Gly Asn Pro Gln Pro Ser Met Asp Gly Glu Leu Leu Leu Arg
785 790 795 800

Ala Glu Gly Ser Thr Pro Ala Gly Gly Gly Leu Ser Gly Gly Gly Gly
805 810 815

Phe Gln Pro Ser Gly Leu Ala Leu Leu His Thr Tyr
820 825

<210> 26

<211> 907

<212> PRT

<213> Homo sapiens

<400> 26

Met Asp Thr Ser Arg Leu Gly Val Leu Leu Ser Leu Pro Val Leu Leu
1 5 10 15

Gln Leu Ala Thr Gly Gly Ser Ser Pro Arg Ser Gly Val Leu Leu Arg
20 25 30

Gly Cys Pro Thr His Cys His Cys Glu Pro Asp Gly Arg Met Leu Leu
35 40 45

Arg Val Asp Cys Ser Asp Leu Gly Leu Ser Glu Leu Pro Ser Asn Leu
50 55 60

Ser Val Phe Thr Ser Tyr Leu Asp Leu Ser Met Asn Asn Ile Ser Gln
65 70 75 80

Leu Leu Pro Asn Pro Leu Pro Ser Leu Arg Phe Leu Glu Glu Leu Arg
85 90 95

Leu Ala Gly Asn Ala Leu Thr Tyr Ile Pro Lys Gly Ala Phe Thr Gly
100 105 110

Leu Tyr Ser Leu Lys Val Leu Met Leu Gln Asn Asn Gln Leu Arg His
 115 120 125
 Val Pro Thr Glu Ala Leu Gln Asn Leu Arg Ser Leu Gln Ser Leu Arg
 130 135 140
 Leu Asp Ala Asn His Ile Ser Tyr Val Pro Pro Ser Cys Phe Ser Gly
 145 150 155 160
 Leu His Ser Leu Arg His Leu Trp Leu Asp Asp Asn Ala Leu Thr Glu
 165 170 175
 Ile Pro Val Gln Ala Phe Arg Ser Leu Ser Ala Leu Gln Ala Met Thr
 180 185 190
 Leu Ala Leu Asn Lys Ile His His Ile Pro Asp Tyr Ala Phe Gly Asn
 195 200 205
 Leu Ser Ser Leu Val Val Leu His Leu His Asn Asn Arg Ile His Ser
 210 215 220
 Leu Gly Lys Lys Cys Phe Asp Gly Leu His Ser Leu Glu Thr Leu Asp
 225 230 235 240
 Leu Asn Tyr Asn Asn Leu Asp Glu Phe Pro Thr Ala Ile Arg Thr Leu
 245 250 255
 Ser Asn Leu Lys Glu Leu Gly Phe His Ser Asn Asn Ile Arg Ser Ile
 260 265 270
 Pro Glu Lys Ala Phe Val Gly Asn Pro Ser Leu Ile Thr Ile His Phe
 275 280 285
 Tyr Asp Asn Pro Ile Gln Phe Val Gly Arg Ser Ala Phe Gln His Leu
 290 295 300
 Pro Glu Leu Arg Thr Leu Thr Leu Asn Gly Ala Ser Gln Ile Thr Glu
 305 310 315 320
 Phe Pro Asp Leu Thr Gly Thr Ala Asn Leu Glu Ser Leu Thr Leu Thr
 325 330 335
 Gly Ala Gln Ile Ser Ser Leu Pro Gln Thr Val Cys Asn Gln Leu Pro
 340 345 350
 Asn Leu Gln Val Leu Asp Leu Ser Tyr Asn Leu Leu Glu Asp Leu Pro
 355 360 365
 Ser Phe Ser Val Cys Gln Lys Leu Gln Lys Ile Asp Leu Arg His Asn
 370 375 380
 Glu Ile Tyr Glu Ile Lys Val Asp Thr Phe Gln Gln Leu Leu Ser Leu
 385 390 395 400
 Arg Ser Leu Asn Leu Ala Trp Asn Lys Ile Ala Ile Ile His Pro Asn
 405 410 415

Ala Phe Ser Thr Leu Pro Ser Leu Ile Lys Leu Asp Leu Ser Ser Asn
 420 425 430
 Leu Leu Ser Ser Phe Pro Ile Thr Gly Leu His Gly Leu Thr His Leu
 435 440 445
 Lys Leu Thr Gly Asn His Ala Leu Gln Ser Leu Ile Ser Ser Glu Asn
 450 455 460
 Phe Pro Glu Leu Lys Val Ile Glu Met Pro Tyr Ala Tyr Gln Cys Cys
 465 470 475 480
 Ala Phe Gly Val Cys Glu Asn Ala Tyr Lys Ile Ser Asn Gln Trp Asn
 485 490 495
 Lys Gly Asp Asn Ser Ser Met Asp Asp Leu His Lys Lys Asp Ala Gly
 500 505 510
 Met Phe Gln Ala Gln Asp Glu Arg Asp Leu Glu Asp Phe Leu Leu Asp
 515 520 525
 Phe Glu Glu Asp Leu Lys Ala Leu His Ser Val Gln Cys Ser Pro Ser
 530 535 540
 Pro Gly Pro Phe Lys Pro Cys Glu His Leu Leu Asp Gly Trp Leu Ile
 545 550 555 560
 Arg Ile Gly Val Trp Thr Ile Ala Val Leu Ala Leu Thr Cys Asn Ala
 565 570 575
 Leu Val Thr Ser Thr Val Phe Arg Ser Pro Leu Tyr Ile Ser Pro Ile
 580 585 590
 Lys Leu Leu Ile Gly Val Ile Ala Ala Val Asn Met Leu Thr Gly Val
 595 600 605
 Ser Ser Ala Val Leu Ala Gly Val Asp Ala Phe Thr Phe Gly Ser Phe
 610 615 620
 Ala Arg His Gly Ala Trp Trp Glu Asn Gly Val Gly Cys His Val Ile
 625 630 635 640
 Gly Phe Leu Ser Ile Phe Ala Ser Glu Ser Ser Val Phe Leu Leu Thr
 645 650 655
 Leu Ala Ala Leu Glu Arg Gly Phe Ser Val Lys Tyr Ser Ala Lys Phe
 660 665 670
 Glu Thr Lys Ala Pro Phe Ser Ser Leu Lys Val Ile Ile Leu Leu Cys
 675 680 685
 Ala Leu Leu Ala Leu Thr Met Ala Ala Val Pro Leu Leu Gly Gly Ser
 690 695 700
 Lys Tyr Gly Ala Ser Pro Leu Cys Leu Pro Leu Pro Phe Gly Glu Pro
 705 710 715 720

Ser Thr Met Gly Tyr Met Val Ala Leu Ile Leu Leu Asn Ser Leu Cys
 725 730 735
 Phe Leu Met Met Thr Ile Ala Tyr Thr Lys Leu Tyr Cys Asn Leu Asp
 740 745 750
 Lys Gly Asp Leu Glu Asn Ile Trp Asp Cys Ser Met Val Lys His Ile
 755 760 765
 Ala Leu Leu Leu Phe Thr Asn Cys Ile Leu Asn Cys Pro Val Ala Phe
 770 775 780
 Leu Ser Phe Ser Ser Leu Ile Asn Leu Thr Phe Ile Ser Pro Glu Val
 785 790 795 800
 Ile Lys Phe Ile Leu Leu Val Val Val Pro Leu Pro Ala Cys Leu Asn
 805 810 815
 Pro Leu Leu Tyr Ile Leu Phe Asn Pro His Phe Lys Glu Asp Leu Val
 820 825 830
 Ser Leu Arg Lys Gln Thr Tyr Val Trp Thr Arg Ser Lys His Pro Ser
 835 840 845
 Leu Met Ser Ile Asn Ser Asp Asp Val Glu Lys Gln Ser Cys Asp Ser
 850 855 860
 Thr Gln Ala Leu Val Thr Phe Thr Ser Ser Ser Ile Thr Tyr Asp Leu
 865 870 875 880
 Pro Pro Ser Ser Val Pro Ser Pro Ala Tyr Pro Val Thr Glu Ser Cys
 885 890 895
 His Leu Ser Ser Val Ala Phe Val Pro Cys Leu
 900 905

<210> 27
 <211> 907
 <212> PRT
 <213> Homo sapiens

<400> 27
 Met Asp Thr Ser Arg Leu Gly Val Leu Leu Ser Leu Pro Val Leu Leu
 1 5 10 15
 Gln Leu Ala Thr Gly Gly Ser Ser Pro Arg Ser Gly Val Leu Leu Arg
 20 25 30
 Gly Cys Pro Thr His Cys His Cys Glu Pro Asp Gly Arg Met Leu Leu
 35 40 45
 Arg Val Asp Cys Ser Asp Leu Gly Leu Ser Glu Leu Pro Ser Asn Leu
 50 55 60
 Ser Val Phe Thr Ser Tyr Leu Asp Leu Ser Met Asn Asn Ile Ser Gln

| | | | | | | |
|---|-----|-----|--|-----|--|-----|
| 65 | | 70 | | 75 | | 80 |
| Leu Leu Pro Asn Pro Leu Pro Ser Leu His Phe Leu Glu Glu Leu Arg | | | | | | |
| | 85 | | | 90 | | 95 |
| Leu Ala Gly Asn Ala Leu Thr Tyr Ile Pro Lys Gly Ala Phe Thr Gly | | | | | | |
| | 100 | | | 105 | | 110 |
| Leu Tyr Ser Leu Lys Val Leu Met Leu Gln Asn Asn Gln Leu Arg His | | | | | | |
| | 115 | | | 120 | | 125 |
| Val Pro Thr Glu Ala Leu Gln Asn Leu Arg Ser Leu Gln Ser Leu Arg | | | | | | |
| | 130 | | | 135 | | 140 |
| Leu Asp Ala Asn His Ile Ser Tyr Val Pro Pro Ser Cys Phe Ser Gly | | | | | | |
| 145 | | 150 | | 155 | | 160 |
| Leu His Ser Leu Arg His Leu Trp Leu Asp Asp Asn Ala Leu Thr Glu | | | | | | |
| | 165 | | | 170 | | 175 |
| Ile Pro Val Gln Ala Phe Arg Ser Leu Ser Ala Leu Gln Ala Met Thr | | | | | | |
| | 180 | | | 185 | | 190 |
| Leu Ala Leu Asn Lys Ile His His Ile Pro Asp Tyr Ala Phe Gly Asn | | | | | | |
| | 195 | | | 200 | | 205 |
| Leu Ser Ser Trp Val Val Leu His Leu His Asn Asn Arg Ile His Ser | | | | | | |
| | 210 | | | 215 | | 220 |
| Leu Gly Lys Lys Cys Phe Asp Gly Leu His Ser Leu Glu Thr Leu Asp | | | | | | |
| 225 | | 230 | | 235 | | 240 |
| Leu Asn Tyr Asn Asn Leu Asp Glu Phe Pro Thr Ala Ile Arg Thr Leu | | | | | | |
| | 245 | | | 250 | | 255 |
| Ser Asn Leu Lys Glu Leu Gly Phe His Ser Asn Asn Ile Arg Ser Ile | | | | | | |
| | 260 | | | 265 | | 270 |
| Pro Glu Lys Ala Phe Val Gly Asn Pro Ser Leu Ile Thr Ile His Phe | | | | | | |
| | 275 | | | 280 | | 285 |
| Tyr Asp Asn Pro Ile Gln Phe Val Gly Arg Ser Ala Phe Gln His Leu | | | | | | |
| | 290 | | | 295 | | 300 |
| Pro Glu Leu Arg Thr Leu Thr Leu Asn Gly Ala Ser Gln Ile Thr Glu | | | | | | |
| 305 | | 310 | | 315 | | 320 |
| Phe Pro Asp Leu Thr Gly Thr Ala Asn Leu Glu Ser Leu Thr Leu Thr | | | | | | |
| | 325 | | | 330 | | 335 |
| Gly Ala Gln Ile Ser Ser Leu Pro Gln Thr Val Cys Asn Gln Leu Pro | | | | | | |
| | 340 | | | 345 | | 350 |
| Asn Leu Gln Val Leu Asp Leu Ser Tyr Asn Leu Leu Glu Asp Leu Pro | | | | | | |
| | 355 | | | 360 | | 365 |
| Ser Phe Ser Val Cys Gln Lys Leu Gln Lys Ile Asp Leu Arg His Asn | | | | | | |

| 370 | 375 | 380 |
|--|-----|-----|
| Glu Ile Tyr Glu Ile Lys Val Asp Thr Phe Gln Gln Leu Leu Ser Leu 385 390 395 400 | | |
| Arg Ser Leu Asn Leu Ala Trp Asn Lys Ile Ala Ile Ile His Pro Asn 405 410 415 | | |
| Ala Phe Ser Thr Leu Pro Ser Leu Ile Lys Leu Asp Leu Ser Ser Asn 420 425 430 | | |
| Leu Leu Ser Ser Phe Pro Ile Thr Gly Leu His Gly Leu Thr His Leu 435 440 445 | | |
| Lys Leu Thr Gly Asn His Ala Leu Gln Ser Leu Ile Ser Ser Glu Asn 450 455 460 | | |
| Phe Pro Glu Leu Lys Val Ile Glu Met Pro Tyr Ala Tyr Gln Cys Cys 465 470 475 480 | | |
| Ala Phe Gly Val Cys Glu Asn Ala Tyr Lys Ile Ser Asn Gln Trp Asn 485 490 495 | | |
| Lys Gly Asp Asn Ser Ser Met Asp Asp Leu His Lys Lys Asp Ala Gly 500 505 510 | | |
| Met Phe Gln Ala Gln Asp Glu Arg Asp Leu Glu Asp Phe Leu Leu Asp 515 520 525 | | |
| Phe Glu Glu Asp Leu Lys Ala Leu His Ser Val Gln Cys Ser Pro Ser 530 535 540 | | |
| Pro Gly Pro Phe Lys Pro Cys Glu His Leu Leu Asp Gly Trp Leu Ile 545 550 555 560 | | |
| Arg Ile Gly Val Trp Thr Ile Ala Val Leu Ala Leu Thr Cys Asn Ala 565 570 575 | | |
| Leu Val Thr Ser Thr Val Phe Arg Ser Pro Leu Tyr Ile Ser Pro Ile 580 585 590 | | |
| Lys Leu Leu Ile Gly Val Ile Ala Ala Val Asn Met Leu Thr Gly Val 595 600 605 | | |
| Ser Ser Ala Val Leu Ala Gly Val Asp Ala Phe Thr Phe Gly Ser Phe 610 615 620 | | |
| Ala Arg His Gly Ala Trp Trp Glu Asn Gly Val Gly Cys His Val Ile 625 630 635 640 | | |
| Gly Phe Leu Ser Ile Phe Ala Ser Glu Ser Ser Val Phe Leu Leu Thr 645 650 655 | | |
| Leu Ala Ala Leu Glu Arg Gly Phe Ser Val Lys Tyr Ser Ala Lys Phe 660 665 670 | | |
| Glu Thr Lys Ala Pro Phe Ser Ser Leu Lys Val Ile Ile Leu Leu Cys | | |

| 675 | | | | | 680 | | | | | 685 | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Ala | Leu | Leu | Ala | Leu | Thr | Met | Ala | Ala | Val | Pro | Leu | Leu | Gly | Gly | Ser | |
| 690 | | | | | 695 | | | | | 700 | | | | | | |
| Lys | Tyr | Gly | Ala | Ser | Pro | Leu | Cys | Leu | Pro | Leu | Pro | Phe | Gly | Glu | Pro | |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 | |
| Ser | Thr | Met | Gly | Tyr | Met | Val | Ala | Leu | Ile | Leu | Leu | Asn | Ser | Leu | Cys | |
| 725 | | | | | 730 | | | | | 735 | | | | | | |
| Phe | Leu | Met | Met | Thr | Ile | Ala | Tyr | Thr | Lys | Leu | Tyr | Cys | Asn | Leu | Asp | |
| 740 | | | | | 745 | | | | | 750 | | | | | | |
| Lys | Gly | Asp | Leu | Glu | Asn | Ile | Trp | Asp | Cys | Ser | Met | Val | Lys | His | Ile | |
| 755 | | | | | 760 | | | | | 765 | | | | | | |
| Ala | Leu | Leu | Leu | Phe | Thr | Asn | Cys | Ile | Leu | Asn | Cys | Pro | Val | Ala | Phe | |
| 770 | | | | | 775 | | | | | 780 | | | | | | |
| Leu | Ser | Phe | Ser | Ser | Leu | Ile | Asn | Leu | Thr | Phe | Ile | Ser | Pro | Glu | Val | |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 | |
| Ile | Lys | Phe | Ile | Leu | Leu | Val | Val | Val | Pro | Leu | Pro | Ala | Cys | Leu | Asn | |
| 805 | | | | | 810 | | | | | 815 | | | | | | |
| Pro | Leu | Leu | Tyr | Ile | Leu | Phe | Asn | Pro | His | Phe | Lys | Glu | Asp | Leu | Val | |
| 820 | | | | | 825 | | | | | 830 | | | | | | |
| Ser | Leu | Arg | Lys | Gln | Thr | Tyr | Val | Trp | Thr | Arg | Ser | Lys | His | Pro | Ser | |
| 835 | | | | | 840 | | | | | 845 | | | | | | |
| Leu | Met | Ser | Ile | Asn | Ser | Asp | Asp | Val | Glu | Lys | Gln | Ser | Cys | Asp | Ser | |
| 850 | | | | | 855 | | | | | 860 | | | | | | |
| Thr | Gln | Ala | Leu | Val | Thr | Phe | Thr | Ser | Ser | Ser | Ile | Thr | Tyr | Asp | Leu | |
| 865 | | | | | 870 | | | | | 875 | | | | | 880 | |
| Pro | Pro | Ser | Ser | Val | Pro | Ser | Pro | Ala | Tyr | Pro | Val | Thr | Glu | Ser | Cys | |
| 885 | | | | | 890 | | | | | 895 | | | | | | |
| His | Leu | Ser | Ser | Val | Ala | Phe | Val | Pro | Cys | Leu | | | | | | |
| 900 | | | | | 905 | | | | | | | | | | | |

<210> 28
 <211> 1531
 <212> PRT
 <213> Mus musculus

<400> 28
 Met Ala Leu Thr Pro Gln Arg Gly Ser Ser Ser Gly Leu Ser Arg Pro
 1 5 10 15
 Glu Leu Trp Leu Leu Trp Ala Ala Trp Arg Leu Gly Ala Thr
 20 25 30

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Cys | Pro | Ala | Leu | Cys | Thr | Cys | Thr | Gly | Thr | Thr | Val | Asp | Cys | His | 35 | 40 | 45 | |
| Gly | Thr | Gly | Leu | Gln | Ala | Ile | Pro | Lys | Asn | Ile | Pro | Arg | Asn | Thr | Glu | 50 | 55 | 60 | |
| Arg | Leu | Glu | Leu | Asn | Gly | Asn | Asn | Ile | Thr | Arg | Ile | His | Lys | Asn | Asp | 65 | 70 | 75 | 80 |
| Phe | Ala | Gly | Leu | Lys | Gln | Leu | Arg | Val | Leu | Gln | Leu | Met | Glu | Asn | Gln | 85 | 90 | 95 | |
| Ile | Gly | Ala | Val | Glu | Arg | Gly | Ala | Phe | Asp | Asp | Met | Lys | Glu | Leu | Glu | 100 | 105 | 110 | |
| Arg | Leu | Arg | Leu | Asn | Arg | Asn | Gln | Leu | Gln | Val | Leu | Pro | Glu | Leu | Leu | 115 | 120 | 125 | |
| Phe | Gln | Asn | Asn | Gln | Ala | Leu | Ser | Arg | Leu | Asp | Leu | Ser | Glu | Asn | Phe | 130 | 135 | 140 | |
| Leu | Gln | Ala | Val | Pro | Arg | Lys | Ala | Phe | Arg | Gly | Ala | Thr | Asp | Leu | Lys | 145 | 150 | 155 | 160 |
| Asn | Leu | Gln | Leu | Asp | Lys | Asn | Arg | Ile | Ser | Cys | Ile | Glu | Glu | Gly | Ala | 165 | 170 | 175 | |
| Phe | Arg | Ala | Leu | Arg | Gly | Leu | Glu | Val | Leu | Thr | Leu | Asn | Asn | Asn | Asn | 180 | 185 | 190 | |
| Ile | Thr | Thr | Ile | Pro | Val | Ser | Ser | Phe | Asn | His | Met | Pro | Lys | Leu | Arg | 195 | 200 | 205 | |
| Thr | Phe | Arg | Leu | His | Ser | Asn | His | Leu | Phe | Cys | Asp | Cys | His | Leu | Ala | 210 | 215 | 220 | |
| Trp | Leu | Ser | Gln | Trp | Leu | Arg | Gln | Arg | Pro | Thr | Ile | Gly | Leu | Phe | Thr | 225 | 230 | 235 | 240 |
| Gln | Cys | Ser | Gly | Pro | Ala | Ser | Leu | Arg | Gly | Leu | Asn | Val | Ala | Glu | Val | 245 | 250 | 255 | |
| Gln | Lys | Gly | Glu | Phe | Ser | Cys | Ser | Gly | Gln | Gly | Glu | Ala | Ala | Gly | Ala | 260 | 265 | 270 | |
| Pro | Ala | Cys | Thr | Leu | Ser | Ser | Gly | Ser | Cys | Pro | Ala | Met | Cys | Ser | Cys | 275 | 280 | 285 | |
| Ser | Ser | Gly | Ile | Val | Asp | Cys | Arg | Gly | Lys | Gly | Leu | Thr | Ala | Ile | Pro | 290 | 295 | 300 | |
| Ala | Asn | Leu | Pro | Glu | Thr | Met | Thr | Glu | Ile | Arg | Leu | Glu | Leu | Asn | Gly | 305 | 310 | 315 | 320 |
| Ile | Lys | Ser | Ile | Pro | Pro | Gly | Ala | Phe | Ser | Pro | Tyr | Arg | Lys | Leu | Arg | 325 | 330 | 335 | |

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Arg | Ile | Asp | Leu | Ser | Asn | Asn | Gln | Ile | Ala | Glu | Ile | Ala | Pro | Asp | Ala | | |
| | | | 340 | | | | | | 345 | | | | | 350 | | | |
| Phe | Gln | Gly | Leu | Arg | Ser | Leu | Asn | Ser | Leu | Val | Leu | Tyr | Gly | Asn | Lys | | |
| | | 355 | | | | | 360 | | | | | 365 | | | | | |
| Ile | Thr | Asp | Leu | Pro | Arg | Gly | Val | Phe | Gly | Gly | Leu | Tyr | Thr | Leu | Gln | | |
| | 370 | | | | | 375 | | | | | 380 | | | | | | |
| Leu | Leu | Leu | Leu | Asn | Ala | Asn | Lys | Ile | Asn | Cys | Ile | Arg | Pro | Asp | Ala | | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | | |
| Phe | Gln | Asp | Leu | Gln | Asn | Leu | Ser | Leu | Leu | Ser | Leu | Tyr | Asp | Asn | Lys | | |
| | | | 405 | | | | | | 410 | | | | | 415 | | | |
| Ile | Gln | Ser | Leu | Ala | Lys | Gly | Thr | Phe | Thr | Ser | Leu | Arg | Ala | Ile | Gln | | |
| | | 420 | | | | | | 425 | | | | | 430 | | | | |
| Thr | Leu | His | Leu | Ala | Gln | Asn | Pro | Phe | Ile | Cys | Asp | Cys | Asn | Leu | Lys | | |
| | 435 | | | | | | 440 | | | | | 445 | | | | | |
| Trp | Leu | Ala | Asp | Phe | Leu | Arg | Thr | Asn | Pro | Ile | Glu | Thr | Thr | Gly | Ala | | |
| | 450 | | | | | 455 | | | | | 460 | | | | | | |
| Arg | Cys | Ala | Ser | Pro | Arg | Arg | Leu | Ala | Asn | Lys | Arg | Ile | Gly | Gln | Ile | | |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 | | |
| Lys | Ser | Lys | Lys | Phe | Arg | Cys | Ser | Ala | Lys | Glu | Gln | Tyr | Phe | Ile | Pro | | |
| | | | 485 | | | | | | 490 | | | | | 495 | | | |
| Gly | Thr | Glu | Asp | Tyr | His | Leu | Asn | Ser | Glu | Cys | Thr | Ser | Asp | Val | Ala | | |
| | | 500 | | | | | | 505 | | | | | 510 | | | | |
| Cys | Pro | His | Lys | Cys | Arg | Cys | Glu | Ala | Ser | Val | Val | Glu | Cys | Ser | Ser | | |
| | 515 | | | | | | 520 | | | | | 525 | | | | | |
| Leu | Lys | Leu | Ser | Lys | Ile | Pro | Glu | Arg | Ile | Pro | Gln | Ser | Thr | Thr | Glu | | |
| | 530 | | | | | 535 | | | | | 540 | | | | | | |
| Leu | Arg | Leu | Asn | Asn | Asn | Glu | Ile | Ser | Ile | Leu | Glu | Ala | Thr | Gly | Leu | | |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 | | |
| Phe | Lys | Lys | Leu | Ser | His | Leu | Lys | Lys | Ile | Asn | Leu | Ser | Asn | Asn | Lys | | |
| | | | 565 | | | | | | 570 | | | | | 575 | | | |
| Val | Ser | Glu | Ile | Glu | Asp | Gly | Thr | Phe | Glu | Gly | Ala | Ala | Ser | Val | Ser | | |
| | | 580 | | | | | | 585 | | | | | | 590 | | | |
| Glu | Leu | His | Leu | Thr | Ala | Asn | Gln | Leu | Glu | Ser | Ile | Arg | Ser | Gly | Met | | |
| | 595 | | | | | 600 | | | | | | 605 | | | | | |
| Phe | Arg | Gly | Leu | Asp | Gly | Leu | Arg | Thr | Leu | Met | Leu | Arg | Asn | Asn | Arg | | |
| | 610 | | | | | 615 | | | | | 620 | | | | | | |
| Ile | Ser | Cys | Ile | His | Asn | Asp | Ser | Phe | Thr | Gly | Leu | Arg | Asn | Val | Arg | | |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Leu | Leu | Ser | Leu | Tyr | Asp | Asn | His | Ile | Thr | Thr | Ile | Ser | Pro | Gly | Ala | |
| | | | | 645 | | | | | 650 | | | | | 655 | | |
| Phe | Asp | Thr | Leu | Gln | Ala | Leu | Ser | Thr | Leu | Asn | Leu | Leu | Ala | Asn | Pro | |
| | | | 660 | | | | | 665 | | | | | 670 | | | |
| Phe | Asn | Cys | Asn | Cys | His | Leu | Ser | Trp | Leu | Gly | Asp | Trp | Leu | Arg | Lys | |
| | | 675 | | | | | 680 | | | | 685 | | | | | |
| Arg | Lys | Ile | Val | Thr | Gly | Asn | Pro | Arg | Cys | Gln | Asn | Pro | Asp | Phe | Leu | |
| | 690 | | | | | 695 | | | | | 700 | | | | | |
| Arg | Gln | Ile | Pro | Leu | Gln | Asp | Val | Ala | Phe | Pro | Asp | Phe | Arg | Cys | Glu | |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 | |
| Glu | Gly | Gln | Glu | Glu | Val | Gly | Cys | Leu | Pro | Arg | Pro | Gln | Cys | Pro | Gln | |
| | | | 725 | | | | | 730 | | | | | | 735 | | |
| Glu | Cys | Ala | Cys | Leu | Asp | Thr | Val | Val | Arg | Cys | Ser | Asn | Lys | His | Leu | |
| | | 740 | | | | | | 745 | | | | | 750 | | | |
| Gln | Ala | Leu | Pro | Lys | Gly | Ile | Pro | Lys | Asn | Val | Thr | Glu | Leu | Tyr | Leu | |
| | 755 | | | | | | 760 | | | | | 765 | | | | |
| Asp | Gly | Asn | Gln | Phe | Thr | Leu | Val | Pro | Gly | Gln | Leu | Ser | Thr | Phe | Lys | |
| | 770 | | | | | 775 | | | | | 780 | | | | | |
| Tyr | Leu | Gln | Leu | Val | Asp | Leu | Ser | Asn | Asn | Lys | Ile | Ser | Ser | Leu | Ser | |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 | |
| Asn | Ser | Ser | Phe | Thr | Asn | Met | Ser | Gln | Leu | Thr | Thr | Leu | Ile | Leu | Ser | |
| | | | 805 | | | | | 810 | | | | | | 815 | | |
| Tyr | Asn | Ala | Leu | Gln | Cys | Ile | Pro | Pro | Leu | Ala | Phe | Gln | Arg | Leu | Arg | |
| | | 820 | | | | | | 825 | | | | | 830 | | | |
| Ser | Leu | Arg | Leu | Leu | Ser | Leu | His | Gly | Asn | Asp | Val | Ser | Thr | Leu | Gln | |
| | | 835 | | | | | 840 | | | | | 845 | | | | |
| Glu | Gly | Ile | Phe | Ala | Asp | Val | Thr | Ser | Leu | Ser | His | Leu | Ala | Ile | Gly | |
| | 850 | | | | | 855 | | | | | 860 | | | | | |
| Ala | Asn | Pro | Leu | Tyr | Cys | Asp | Cys | Arg | Leu | Arg | Trp | Leu | Ser | Ser | Trp | |
| 865 | | | | | 870 | | | | | 875 | | | | | 880 | |
| Val | Lys | Thr | Gly | Tyr | Lys | Glu | Pro | Gly | Ile | Ala | Arg | Cys | Ala | Gly | Pro | |
| | | | 885 | | | | | 890 | | | | | | 895 | | |
| Pro | Glu | Met | Glu | Gly | Lys | Leu | Leu | Leu | Thr | Thr | Pro | Ala | Lys | Lys | Phe | |
| | | 900 | | | | | | 905 | | | | | 910 | | | |
| Glu | Cys | Gln | Gly | Pro | Pro | Ser | Leu | Ala | Val | Gln | Ala | Lys | Cys | Asp | Pro | |
| | 915 | | | | | | 920 | | | | | 925 | | | | |
| Cys | Leu | Ser | Ser | Pro | Cys | Gln | Asn | Gln | Gly | Thr | Cys | His | Asn | Asp | Pro | |
| | 930 | | | | | 935 | | | | | 940 | | | | | |

Leu Glu Val Tyr Arg Cys Thr Cys Pro Ser Gly Tyr Lys Gly Arg His
 945 950 955 960
 Cys Glu Val Ser Leu Asp Gly Cys Ser Ser Asn Pro Cys Gly Asn Gly
 965 970 975
 Gly Thr Cys His Ala Gln Glu Gly Glu Asp Ala Gly Phe Thr Cys Ser
 980 985 990
 Cys Pro Ser Gly Phe Glu Gly Pro Thr Cys Gly Val Asp Thr Asp Asp
 995 1000 1005
 Cys Val Lys His Ala Cys Val Asn Gly Gly Val Cys Val Asp Gly Val
 1010 1015 1020
 Gly Asn Tyr Thr Cys Gln Cys Pro Leu Gln Tyr Thr Gly Arg Ala Cys
 1025 1030 1035 1040
 Glu Gln Leu Val Asp Phe Cys Ser Pro Asp Met Asn Pro Cys Gln His
 1045 1050 1055
 Glu Ala Gln Cys Val Gly Thr Pro Asp Gly Pro Arg Cys Glu Cys Met
 1060 1065 1070
 Leu Gly Tyr Thr Gly Asp Asn Cys Ser Glu Asn Gln Asp Asp Cys Lys
 1075 1080 1085
 Asp His Lys Cys Gln Asn Gly Ala Gln Cys Val Asp Glu Val Asn Ser
 1090 1095 1100
 Tyr Ala Cys Leu Cys Val Glu Gly Tyr Ser Gly Gln Leu Cys Glu Ile
 1105 1110 1115 1120
 Pro Pro Ala Pro Arg Ser Ser Cys Glu Gly Thr Glu Cys Gln Asn Gly
 1125 1130 1135
 Ala Asn Cys Val Asp Gln Gly Ser Arg Pro Val Cys Gln Cys Leu Pro
 1140 1145 1150
 Gly Phe Gly Gly Pro Glu Cys Glu Lys Leu Leu Ser Val Asn Phe Val
 1155 1160 1165
 Asp Arg Asp Thr Tyr Leu Gln Phe Thr Asp Leu Gln Asn Trp Pro Arg
 1170 1175 1180
 Ala Asn Ile Thr Leu Gln Val Ser Thr Ala Glu Asp Asn Gly Ile Leu
 1185 1190 1195 1200
 Leu Tyr Asn Gly Asp Asn Asp His Ile Ala Val Glu Leu Tyr Gln Gly
 1205 1210 1215
 His Val Arg Val Ser Tyr Asp Pro Gly Ser Tyr Pro Ser Ser Ala Ile
 1220 1225 1230
 Tyr Ser Ala Glu Thr Ile Asn Asp Gly Gln Phe His Thr Val Glu Leu
 1235 1240 1245

Val Thr Phe Asp Gln Met Val Asn Leu Ser Ile Asp Gly Gly Ser Pro
 1250 1255 1260
 Met Thr Met Asp Asn Phe Gly Lys His Tyr Thr Leu Asn Ser Glu Ala
 1265 1270 1275 1280
 Pro Leu Tyr Val Gly Gly Met Pro Val Asp Val Asn Ser Ala Ala Phe
 1285 1290 1295
 Arg Leu Trp Gln Ile Leu Asn Gly Thr Ser Phe His Gly Cys Ile Arg
 1300 1305 1310
 Asn Leu Tyr Ile Asn Asn Glu Leu Gln Asp Phe Thr Lys Thr Gln Met
 1315 1320 1325
 Lys Pro Gly Val Val Pro Gly Cys Glu Pro Cys Arg Lys Leu Tyr Cys
 1330 1335 1340
 Leu His Gly Ile Cys Gln Pro Asn Ala Thr Pro Gly Pro Val Cys His
 1345 1350 1355 1360
 Cys Glu Ala Gly Trp Gly Gly Leu His Cys Asp Gln Pro Val Asp Gly
 1365 1370 1375
 Pro Cys His Gly His Lys Cys Val His Gly Lys Cys Val Pro Leu Asp
 1380 1385 1390
 Ala Leu Ala Tyr Ser Cys Gln Cys Gln Asp Gly Tyr Ser Gly Ala Leu
 1395 1400 1405
 Cys Asn Gln Val Gly Ala Val Ala Glu Pro Cys Gly Gly Leu Gln Cys
 1410 1415 1420
 Leu His Gly His Cys Gln Ala Ser Ala Thr Lys Gly Ala His Cys Val
 1425 1430 1435 1440
 Cys Ser Pro Gly Phe Ser Gly Glu Leu Cys Glu Gln Glu Ser Glu Cys
 1445 1450 1455
 Arg Gly Asp Pro Val Arg Asp Phe His Arg Val Gln Arg Gly Tyr Ala
 1460 1465 1470
 Ile Cys Gln Thr Thr Arg Pro Leu Ser Trp Val Glu Cys Arg Gly Ala
 1475 1480 1485
 Cys Pro Gly Gln Gly Cys Cys Gln Gly Leu Arg Leu Lys Arg Arg Lys
 1490 1495 1500
 Leu Thr Phe Glu Cys Ser Asp Gly Thr Ser Phe Ala Glu Glu Val Glu
 1505 1510 1515 1520
 Lys Pro Thr Lys Cys Gly Cys Ala Gln Cys Val
 1525 1530

<210> 29

<211> 1523

<212> PRT

<213> *Drosophila melanogaster*

<400> 29

Met Ala Pro Gly Trp Ala Gly Val Gly Ala Ala Val Arg Ala Arg Leu
1 5 10 15

Ala Leu Ala Leu Ala Leu Ala Ser Val Leu Ser Gly Pro Pro Ala Val
20 25 30

Ala Cys Pro Thr Lys Cys Thr Cys Ser Ala Ala Ser Val Asp Cys His
35 40 45

Gly Leu Gly Leu Arg Ala Val Pro Arg Gly Ile Pro Arg Asn Ala Glu
50 55 60

Arg Leu Asp Leu Asp Arg Asn Asn Ile Thr Arg Ile Thr Lys Met Asp
65 70 75 80

Phe Ala Gly Leu Lys Asn Leu Arg Val Leu His Leu Glu Asp Asn Gln
85 90 95

Val Ser Val Ile Glu Arg Gly Ala Phe Gln Asp Leu Lys Gln Leu Glu
100 105 110

Arg Leu Arg Leu Asn Lys Asn Lys Leu Gln Val Leu Pro Glu Leu Leu
115 120 125

Phe Gln Ser Thr Pro Lys Leu Thr Arg Leu Asp Leu Ser Glu Asn Gln
130 135 140

Ile Gln Gly Ile Pro Arg Lys Ala Phe Arg Gly Ile Thr Asp Val Lys
145 150 155 160

Asn Leu Gln Leu Asp Asn Asn His Ile Ser Cys Ile Glu Asp Gly Ala
165 170 175

Phe Arg Ala Leu Arg Asp Leu Glu Ile Leu Thr Leu Asn Asn Asn Asn
180 185 190

Ile Ser Arg Ile Leu Val Thr Ser Phe Asn His Met Pro Lys Ile Arg
195 200 205

Thr Leu Arg Leu His Ser Asn His Leu Tyr Cys Asp Cys His Leu Ala
210 215 220

Trp Leu Ser Asp Trp Leu Arg Gln Arg Arg Thr Val Gly Gln Phe Thr
225 230 235 240

Leu Cys Met Ala Pro Val His Leu Arg Gly Phe Asn Val Ala Asp Val
245 250 255

Gln Lys Lys Glu Tyr Val Cys Pro Ala Pro His Ser Glu Pro Pro Ser
260 265 270

Cys Asn Ala Asn Ser Ile Ser Cys Pro Ser Pro Cys Thr Cys Ser Asn
275 280 285

Asn Ile Val Asp Cys Arg Gly Lys Gly Leu Met Glu Ile Pro Ala Asn
 290 295 300
 Leu Pro Glu Gly Ile Val Glu Ile Arg Leu Glu Gln Asn Ser Ile Lys
 305 310 315 320
 Ala Ile Pro Ala Gly Ala Phe Thr Gln Tyr Lys Lys Leu Lys Arg Ile
 325 330 335
 Asp Ile Ser Lys Asn Gln Ile Ser Asp Ile Ala Pro Asp Ala Phe Gln
 340 345 350
 Gly Leu Lys Ser Leu Thr Ser Leu Val Leu Tyr Gly Asn Lys Ile Thr
 355 360 365
 Glu Ile Ala Lys Gly Leu Phe Asp Gly Leu Val Ser Leu Gln Leu Leu
 370 375 380
 Leu Leu Asn Ala Asn Lys Ile Asn Cys Leu Arg Val Asn Thr Phe Gln
 385 390 395 400
 Asp Leu Gln Asn Leu Asn Leu Leu Ser Leu Tyr Asp Asn Lys Leu Gln
 405 410 415
 Thr Ile Ser Lys Gly Leu Phe Ala Pro Leu Gln Ser Ile Gln Thr Leu
 420 425 430
 His Leu Ala Gln Asn Pro Phe Val Cys Asp Cys His Leu Lys Trp Leu
 435 440 445
 Ala Asp Tyr Leu Gln Asp Asn Pro Ile Glu Thr Ser Gly Ala Arg Cys
 450 455 460
 Ser Ser Pro Arg Arg Leu Ala Asn Lys Arg Ile Ser Gln Ile Lys Ser
 465 470 475 480
 Lys Lys Phe Arg Cys Ser Gly Ser Glu Asp Tyr Arg Ser Arg Phe Ser
 485 490 495
 Ser Glu Cys Phe Met Asp Leu Val Cys Pro Glu Lys Cys Arg Cys Glu
 500 505 510
 Gly Thr Ile Val Asp Cys Ser Asn Gln Lys Leu Val Arg Ile Pro Ser
 515 520 525
 His Leu Pro Glu Tyr Val Thr Asp Leu Arg Leu Asn Asp Asn Glu Val
 530 535 540
 Ser Val Leu Glu Ala Thr Gly Ile Phe Lys Lys Leu Pro Asn Leu Arg
 545 550 555 560
 Lys Ile Asn Leu Ser Asn Asn Lys Ile Lys Glu Val Arg Glu Gly Ala
 565 570 575
 Phe Asp Gly Ala Ala Ser Val Gln Glu Leu Met Leu Thr Gly Asn Gln
 580 585 590

Leu Glu Thr Val His Gly Arg Val Phe Arg Gly Leu Ser Gly Leu Lys
 595 600 605
 Thr Leu Met Leu Arg Ser Asn Leu Ile Gly Cys Val Ser Asn Asp Thr
 610 615 620
 Phe Ala Gly Leu Ser Ser Val Arg Leu Leu Ser Leu Tyr Asp Asn Arg
 625 630 635 640
 Ile Thr Thr Ile Thr Pro Gly Ala Phe Thr Thr Leu Val Ser Leu Ser
 645 650 655
 Thr Ile Asn Leu Leu Ser Asn Pro Phe Asn Cys Asn Cys His Leu Ala
 660 665 670
 Trp Leu Gly Lys Trp Leu Arg Lys Arg Arg Ile Val Ser Gly Asn Pro
 675 680 685
 Arg Cys Gln Lys Pro Phe Phe Leu Lys Glu Ile Pro Ile Gln Asp Val
 690 695 700
 Ala Ile Gln Asp Phe Thr Cys Asp Gly Asn Glu Glu Ser Ser Cys Gln
 705 710 715 720
 Leu Ser Pro Arg Cys Pro Glu Gln Cys Thr Cys Met Glu Thr Val Val
 725 730 735
 Arg Cys Ser Asn Lys Gly Leu Arg Ala Leu Pro Arg Gly Met Pro Lys
 740 745 750
 Asp Val Thr Glu Leu Tyr Leu Glu Gly Asn His Leu Thr Ala Val Pro
 755 760 765
 Arg Glu Leu Ser Ala Leu Arg His Leu Thr Leu Ile Asp Leu Ser Asn
 770 775 780
 Asn Ser Ile Ser Met Leu Thr Asn Tyr Thr Phe Ser Asn Met Ser His
 785 790 795 800
 Leu Ser Thr Leu Ile Leu Ser Tyr Asn Arg Leu Arg Cys Ile Pro Val
 805 810 815
 His Ala Phe Asn Gly Leu Arg Ser Leu Arg Val Leu Thr Leu His Gly
 820 825 830
 Asn Asp Ile Ser Ser Val Pro Glu Gly Ser Phe Asn Asp Leu Thr Ser
 835 840 845
 Leu Ser His Leu Ala Leu Gly Thr Asn Pro Leu His Cys Asp Cys Ser
 850 855 860
 Leu Arg Trp Leu Ser Glu Trp Val Lys Ala Gly Tyr Lys Glu Pro Gly
 865 870 875 880
 Ile Ala Arg Cys Ser Ser Pro Glu Pro Met Ala Asp Arg Leu Leu Leu
 885 890 895

Thr Thr Pro Thr His Arg Phe Gln Cys Lys Gly Pro Val Asp Ile Asn
 900 905 910
 Ile Val Ala Lys Cys Asn Ala Cys Leu Ser Ser Pro Cys Lys Asn Asn
 915 920 925
 Gly Thr Cys Thr Gln Asp Pro Val Glu Leu Tyr Arg Cys Ala Cys Pro
 930 935 940
 Tyr Ser Tyr Lys Gly Lys Asp Cys Thr Val Pro Ile Asn Thr Cys Ile
 945 950 955 960
 Gln Asn Pro Cys Gln His Gly Gly Thr Cys His Leu Ser Asp Ser His
 965 970 975
 Lys Asp Gly Phe Ser Cys Ser Cys Pro Leu Gly Phe Glu Gly Gln Arg
 980 985 990
 Cys Glu Ile Asn Pro Asp Asp Cys Glu Asp Asn Asp Cys Glu Asn Asn
 995 1000 1005
 Ala Thr Cys Val Asp Gly Ile Asn Asn Tyr Val Cys Ile Cys Pro Pro
 1010 1015 1020
 Asn Tyr Thr Gly Glu Leu Cys Asp Glu Val Ile Asp His Cys Val Pro
 1025 1030 1035 1040
 Glu Leu Asn Leu Cys Gln His Glu Ala Lys Cys Ile Pro Leu Asp Lys
 1045 1050 1055
 Gly Phe Ser Cys Glu Cys Val Pro Gly Tyr Ser Gly Lys Leu Cys Glu
 1060 1065 1070
 Thr Asp Asn Asp Asp Cys Val Ala His Lys Cys Arg His Gly Ala Gln
 1075 1080 1085
 Cys Val Asp Thr Ile Asn Gly Tyr Thr Cys Thr Cys Pro Gln Gly Phe
 1090 1095 1100
 Ser Gly Pro Phe Cys Glu His Pro Pro Pro Met Val Leu Leu Gln Thr
 1105 1110 1115 1120
 Ser Pro Cys Asp Gln Tyr Glu Cys Gln Asn Gly Ala Gln Cys Ile Val
 1125 1130 1135
 Val Gln Gln Glu Pro Thr Cys Arg Cys Pro Pro Gly Phe Ala Gly Pro
 1140 1145 1150
 Arg Cys Glu Lys Leu Ile Thr Val Asn Phe Val Gly Lys Asp Ser Tyr
 1155 1160 1165
 Val Glu Leu Ala Ser Ala Lys Val Arg Pro Gln Ala Asn Ile Ser Leu
 1170 1175 1180
 Gln Val Ala Thr Asp Lys Asp Asn Gly Ile Leu Leu Tyr Lys Gly Asp
 1185 1190 1195 1200

Asn Asp Pro Leu Ala Leu Glu Leu Tyr Gln Gly His Val Arg Leu Val
 1205 1210 1215
 Tyr Asp Ser Leu Ser Ser Pro Pro Thr Thr Val Tyr Ser Val Glu Thr
 1220 1225 1230
 Val Asn Asp Gly Gln Phe His Ser Val Glu Leu Val Thr Leu Asn Gln
 1235 1240 1245
 Thr Leu Asn Leu Val Val Asp Lys Gly Thr Pro Lys Ser Leu Gly Lys
 1250 1255 1260
 Leu Gln Lys Gln Pro Ala Val Gly Ile Asn Ser Pro Leu Tyr Leu Gly
 1265 1270 1275 1280
 Gly Ile Pro Thr Ser Thr Gly Leu Ser Ala Leu Arg Gln Gly Thr Asp
 1285 1290 1295
 Arg Pro Leu Gly Gly Phe His Gly Cys Ile His Glu Val Arg Ile Asn
 1300 1305 1310
 Asn Glu Leu Gln Asp Phe Lys Ala Leu Pro Pro Gln Ser Leu Gly Val
 1315 1320 1325
 Ser Pro Gly Cys Lys Ser Cys Thr Val Cys Lys His Gly Leu Cys Arg
 1330 1335 1340
 Ser Val Glu Lys Asp Ser Val Val Cys Glu Cys Arg Pro Gly Trp Thr
 1345 1350 1355 1360
 Gly Pro Leu Cys Asp Gln Glu Ala Arg Asp Pro Cys Leu Gly His Arg
 1365 1370 1375
 Cys His His Gly Lys Cys Val Ala Thr Gly Thr Ser Tyr Met Cys Lys
 1380 1385 1390
 Cys Ala Glu Gly Tyr Gly Gly Asp Leu Cys Asp Asn Lys Asn Asp Ser
 1395 1400 1405
 Ala Asn Ala Cys Ser Ala Phe Lys Cys His His Gly Gln Cys His Ile
 1410 1415 1420
 Ser Asp Gln Gly Glu Pro Tyr Cys Leu Cys Gln Pro Gly Phe Ser Gly
 1425 1430 1435 1440
 Glu His Cys Gln Gln Glu Asn Pro Cys Leu Gly Gln Val Val Arg Glu
 1445 1450 1455
 Val Ile Arg Arg Gln Lys Gly Tyr Ala Ser Cys Ala Thr Ala Ser Lys
 1460 1465 1470
 Val Pro Ile Met Glu Cys Arg Gly Gly Cys Gly Pro Gln Cys Cys Gln
 1475 1480 1485
 Pro Thr Arg Ser Lys Arg Arg Lys Tyr Val Phe Gln Cys Thr Asp Gly
 1490 1495 1500

Ser Ser Phe Val Glu Glu Val Glu Arg His Leu Glu Cys Gly Cys Leu
 1505 1510 1515 1520

Ala Cys Ser

<210> 30
 <211> 1534
 <212> PRT
 <213> *Drosophila melanogaster*

<400> 30

Met Ala Leu Thr Pro Gly Trp Gly Ser Ser Ala Gly Pro Val Arg Pro
 1 5 10 15

Glu Leu Trp Leu Leu Leu Trp Ala Ala Ala Trp Arg Leu Gly Ala Ser
 20 25 30

Ala Cys Pro Ala Leu Cys Thr Cys Thr Gly Thr Thr Val Asp Cys His
 35 40 45

Gly Thr Gly Leu Gln Ala Ile Pro Lys Asn Ile Pro Arg Asn Thr Glu
 50 55 60

Arg Leu Glu Leu Asn Gly Asn Asn Ile Thr Arg Ile His Lys Asn Asp
 65 70 75 80

Phe Ala Gly Leu Lys Gln Leu Arg Val Leu Gln Leu Met Glu Asn Gln
 85 90 95

Ile Gly Ala Val Glu Arg Gly Ala Phe Asp Asp Met Lys Glu Leu Glu
 100 105 110

Arg Leu Arg Leu Asn Arg Asn Gln Leu His Met Leu Pro Glu Leu Leu
 115 120 125

Phe Gln Asn Asn Gln Ala Leu Ser Arg Leu Asp Leu Ser Glu Asn Ala
 130 135 140

Ile Gln Ala Ile Pro Arg Lys Ala Phe Arg Gly Ala Thr Asp Leu Lys
 145 150 155 160

Asn Leu Arg Leu Asp Lys Asn Gln Ile Ser Cys Ile Glu Glu Gly Ala
 165 170 175

Phe Arg Ala Leu Arg Gly Leu Glu Val Leu Thr Leu Asn Asn Asn Asn
 180 185 190

Ile Thr Thr Ile Pro Val Ser Ser Phe Asn His Met Pro Lys Leu Arg
 195 200 205

Thr Phe Arg Leu His Ser Asn His Leu Phe Cys Asp Cys His Leu Ala
 210 215 220

Trp Leu Ser Gln Trp Leu Arg Gln Arg Pro Thr Ile Gly Leu Phe Thr

| | | | | | | |
|---|-------------------------------------|-----------------|-------------|-----|--|-----|
| 225 | | 230 | | 235 | | 240 |
| Gln Cys Ser Gly | Pro Ala Ser Leu Arg | Gly Leu Asn Val | Ala Glu Val | | | |
| | 245 | 250 | 255 | | | |
| Gln Lys Ser Glu Phe Ser Cys Ser | Gly Gln Gly Glu Ala Gly Arg Val | | | | | |
| | 260 | 265 | 270 | | | |
| Pro Thr Cys Thr Leu Ser Ser | Gly Ser Cys Pro Ala Met Cys Thr Cys | | | | | |
| | 275 | 280 | 285 | | | |
| Ser Asn Gly Ile Val Asp Cys Arg Gly Lys Gly | Leu Thr Ala Ile Pro | | | | | |
| | 290 | 295 | 300 | | | |
| Ala Asn Leu Pro Glu Thr Met Thr Glu Ile Arg | Leu Glu Leu Asn Gly | | | | | |
| 305 | 310 | 315 | 320 | | | |
| Ile Lys Ser Ile Pro Pro Gly Ala Phe Ser Pro Tyr Arg Lys Leu Arg | | | | | | |
| | 325 | 330 | 335 | | | |
| Arg Ile Asp Leu Ser Asn Asn Gln Ile Ala Glu Ile Ala Pro Asp Ala | | | | | | |
| | 340 | 345 | 350 | | | |
| Phe Gln Gly Leu Arg Ser Leu Asn Ser Leu Val Leu Tyr Gly Asn Lys | | | | | | |
| | 355 | 360 | 365 | | | |
| Ile Thr Asp Leu Pro Arg Gly Val Phe Gly Gly Leu Tyr Thr Leu Gln | | | | | | |
| | 370 | 375 | 380 | | | |
| Leu Leu Leu Leu Asn Ala Asn Lys Ile Asn Cys Ile Arg Pro Asp Ala | | | | | | |
| 385 | 390 | 395 | 400 | | | |
| Phe Gln Asp Leu Gln Asn Leu Ser Leu Leu Ser Leu Tyr Asp Asn Lys | | | | | | |
| | 405 | 410 | 415 | | | |
| Ile Gln Ser Leu Ala Lys Gly Thr Phe Thr Ser Leu Arg Ala Ile Gln | | | | | | |
| | 420 | 425 | 430 | | | |
| Thr Leu His Leu Ala Gln Asn Pro Phe Ile Cys Asp Cys Asn Leu Lys | | | | | | |
| | 435 | 440 | 445 | | | |
| Trp Leu Ala Asp Phe Leu Arg Thr Asn Pro Ile Glu Thr Ser Gly Ala | | | | | | |
| | 450 | 455 | 460 | | | |
| Arg Cys Ala Ser Pro Arg Arg Leu Ala Asn Lys Arg Ile Gly Gln Ile | | | | | | |
| 465 | 470 | 475 | 480 | | | |
| Lys Ser Lys Lys Phe Arg Cys Ser Ala Lys Glu Gln Tyr Phe Ile Pro | | | | | | |
| | 485 | 490 | 495 | | | |
| Gly Thr Glu Asp Tyr Gln Leu Asn Ser Glu Cys Asn Ser Asp Val Val | | | | | | |
| | 500 | 505 | 510 | | | |
| Cys Pro His Lys Cys Arg Cys Glu Ala Asn Val Val Glu Cys Ser Ser | | | | | | |
| | 515 | 520 | 525 | | | |
| Leu Lys Leu Thr Lys Ile Pro Glu Arg Ile Pro Gln Ser Thr Ala Glu | | | | | | |

| 530 | 535 | 540 |
|--|-----|---------|
| Leu Arg Leu Asn Asn Asn Glu Ile Ser Ile Leu Glu Ala Thr Gly Met 545 | 550 | 555 560 |
| Phe Lys Lys Leu Thr His Leu Lys Lys Ile Asn Leu Ser Asn Asn Lys 565 | 570 | 575 |
| Val Ser Glu Ile Glu Asp Gly Ala Phe Glu Gly Ala Ala Ser Val Ser 580 | 585 | 590 |
| Glu Leu His Leu Thr Ala Asn Gln Leu Glu Ser Ile Arg Ser Gly Met 595 | 600 | 605 |
| Phe Arg Gly Leu Asp Gly Leu Arg Thr Leu Met Leu Arg Asn Asn Arg 610 | 615 | 620 |
| Ile Ser Cys Ile His Asn Asp Ser Phe Thr Gly Leu Arg Asn Val Arg 625 | 630 | 635 640 |
| Leu Leu Ser Leu Tyr Asp Asn Gln Ile Thr Thr Val Ser Pro Gly Ala 645 | 650 | 655 |
| Phe Asp Thr Leu Gln Ser Leu Ser Thr Leu Asn Leu Leu Ala Asn Pro 660 | 665 | 670 |
| Phe Asn Cys Asn Cys Gln Leu Ala Trp Leu Gly Gly Trp Leu Arg Lys 675 | 680 | 685 |
| Arg Lys Ile Val Thr Gly Asn Pro Arg Cys Gln Asn Pro Asp Phe Leu 690 | 695 | 700 |
| Arg Gln Ile Pro Leu Gln Asp Val Ala Phe Pro Asp Phe Arg Cys Glu 705 | 710 | 715 720 |
| Glu Gly Gln Glu Glu Gly Gly Cys Leu Pro Arg Pro Gln Cys Pro Gln 725 | 730 | 735 |
| Glu Cys Ala Cys Leu Asp Thr Val Val Arg Cys Ser Asn Lys His Leu 740 | 745 | 750 |
| Arg Ala Leu Pro Lys Gly Ile Pro Lys Asn Val Thr Glu Leu Tyr Leu 755 | 760 | 765 |
| Asp Gly Asn Gln Phe Thr Leu Val Pro Gly Gln Leu Ser Thr Phe Lys 770 | 775 | 780 |
| Tyr Leu Gln Leu Val Asp Leu Ser Asn Asn Lys Ile Ser Ser Leu Ser 785 | 790 | 795 800 |
| Asn Ser Ser Phe Thr Asn Met Ser Gln Leu Thr Thr Leu Ile Leu Ser 805 | 810 | 815 |
| Tyr Asn Ala Leu Gln Cys Ile Pro Pro Leu Ala Phe Gln Gly Leu Arg 820 | 825 | 830 |
| Ser Leu Arg Leu Leu Ser Leu His Gly Asn Asp Ile Ser Thr Leu Gln | | |

| 835 | | | | | 840 | | | | | 845 | | | | |
|---|-----|--|------|------|-----|--|------|------|-----|------|--|------|------|--|
| Glu Gly Ile Phe Ala Asp Val Thr Ser Leu Ser His Leu Ala Ile Gly | 850 | | | | 855 | | | | | 860 | | | | |
| Ala Asn Pro Leu Tyr Cys Asp Cys His Leu Arg Trp Leu Ser Ser Trp | 865 | | | | 870 | | | | | 875 | | | 880 | |
| Val Lys Thr Gly Tyr Lys Glu Pro Gly Ile Ala Arg Cys Ala Gly Pro | | | | 885 | | | | | 890 | | | | 895 | |
| Gln Asp Met Glu Gly Lys Leu Leu Leu Thr Thr Pro Ala Lys Lys Phe | | | 900 | | | | | 905 | | | | 910 | | |
| Glu Cys Gln Gly Pro Pro Thr Leu Ala Val Gln Ala Lys Cys Asp Leu | | | 915 | | | | 920 | | | | | 925 | | |
| Cys Leu Ser Ser Pro Cys Gln Asn Gln Gly Thr Cys His Asn Asp Pro | | | 930 | | | | 935 | | | | | 940 | | |
| Leu Glu Val Tyr Arg Cys Ala Cys Pro Ser Gly Tyr Lys Gly Arg Asp | | | 945 | | | | 950 | | | 955 | | | 960 | |
| Cys Glu Val Ser Leu Asn Ser Cys Ser Ser Gly Pro Cys Glu Asn Gly | | | | 965 | | | | | 970 | | | | 975 | |
| Gly Thr Cys His Ala Gln Glu Gly Glu Asp Ala Pro Phe Thr Cys Ser | | | | 980 | | | | 985 | | | | | 990 | |
| Cys Pro Thr Gly Phe Glu Gly Pro Thr Cys Gly Val Asn Thr Asp Asp | | | | 995 | | | 1000 | | | | | 1005 | | |
| Cys Val Asp His Ala Cys Ala Asn Gly Gly Val Cys Val Asp Gly Val | | | 1010 | | | | 1015 | | | | | 1020 | | |
| Gly Asn Tyr Thr Cys Gln Cys Pro Leu Gln Tyr Glu Gly Lys Ala Cys | | | 1025 | | | | 1030 | | | 1035 | | | 1040 | |
| Glu Gln Leu Val Asp Leu Cys Ser Pro Asp Leu Asn Pro Cys Gln His | | | | 1045 | | | | 1050 | | | | | 1055 | |
| Glu Ala Gln Cys Val Gly Thr Pro Asp Gly Pro Arg Cys Glu Cys Met | | | 1060 | | | | 1065 | | | | | 1070 | | |
| Pro Gly Tyr Ala Gly Asp Asn Cys Ser Glu Asn Gln Asp Asp Cys Arg | | | 1075 | | | | 1080 | | | | | 1085 | | |
| Asp His Arg Cys Gln Asn Gly Ala Gln Cys Met Asp Glu Val Asn Ser | | | 1090 | | | | 1095 | | | | | 1100 | | |
| Tyr Ser Cys Leu Cys Ala Glu Gly Tyr Ser Gly Gln Leu Cys Glu Ile | | | 1105 | | | | 1110 | | | 1115 | | | 1120 | |
| Pro Pro His Leu Pro Ala Pro Lys Ser Pro Cys Glu Gly Thr Glu Cys | | | | 1125 | | | | 1130 | | | | | 1135 | |
| Gln Asn Gly Ala Asn Cys Val Asp Gln Gly Asn Arg Pro Val Cys Gln | | | | | | | | | | | | | | |

| | | |
|---|------|-----------|
| 1140 | 1145 | 1150 |
| Cys Leu Pro Gly Phe Gly Gly Pro Glu Cys Glu Lys Leu Leu Ser Val | | |
| 1155 | 1160 | 1165 |
| Asn Phe Val Asp Arg Asp Thr Tyr Leu Gln Phe Thr Asp Leu Gln Asn | | |
| 1170 | 1175 | 1180 |
| Trp Pro Arg Ala Asn Ile Thr Leu Gln Val Ser Thr Ala Glu Asp Asn | | |
| 1185 | 1190 | 1195 1200 |
| Gly Ile Leu Leu Tyr Asn Gly Asp Asn Asp His Ile Ala Val Glu Leu | | |
| 1205 | 1210 | 1215 |
| Tyr Gln Gly His Val Arg Val Ser Tyr Asp Pro Gly Ser Tyr Pro Ser | | |
| 1220 | 1225 | 1230 |
| Ser Ala Ile Tyr Ser Ala Glu Thr Ile Asn Asp Gly Gln Phe His Thr | | |
| 1235 | 1240 | 1245 |
| Val Glu Leu Val Ala Phe Asp Gln Met Val Asn Leu Ser Ile Asp Gly | | |
| 1250 | 1255 | 1260 |
| Gly Ser Pro Met Thr Met Asp Asn Phe Gly Lys His Tyr Thr Leu Asn | | |
| 1265 | 1270 | 1275 1280 |
| Ser Glu Ala Pro Leu Tyr Val Gly Gly Met Pro Val Asp Val Asn Ser | | |
| 1285 | 1290 | 1295 |
| Ala Ala Phe Arg Leu Trp Gln Ile Leu Asn Gly Thr Gly Phe His Gly | | |
| 1300 | 1305 | 1310 |
| Cys Ile Arg Asn Leu Tyr Ile Asn Asn Glu Leu Gln Asp Phe Thr Lys | | |
| 1315 | 1320 | 1325 |
| Thr Gln Met Lys Pro Gly Val Val Pro Gly Cys Glu Pro Cys Arg Lys | | |
| 1330 | 1335 | 1340 |
| Leu Tyr Cys Leu His Gly Ile Cys Gln Pro Asn Ala Thr Pro Gly Pro | | |
| 1345 | 1350 | 1355 1360 |
| Met Cys His Cys Glu Ala Gly Trp Val Gly Leu His Cys Asp Gln Pro | | |
| 1365 | 1370 | 1375 |
| Ala Asp Gly Pro Cys His Gly His Lys Cys Val His Gly Gln Cys Val | | |
| 1380 | 1385 | 1390 |
| Pro Leu Asp Ala Leu Ser Tyr Ser Cys Gln Cys Gln Asp Gly Tyr Ser | | |
| 1395 | 1400 | 1405 |
| Gly Ala Leu Cys Asn Gln Ala Gly Ala Leu Ala Glu Pro Cys Arg Gly | | |
| 1410 | 1415 | 1420 |
| Leu Gln Cys Leu His Gly His Cys Gln Ala Ser Gly Thr Lys Gly Ala | | |
| 1425 | 1430 | 1435 1440 |
| His Cys Val Cys Asp Pro Gly Phe Ser Gly Glu Leu Cys Glu Gln Glu | | |

| | | |
|---|------|------|
| 1445 | 1450 | 1455 |
| Ser Glu Cys Arg Gly Asp Pro Val Arg Asp Phe His Gln Val Gln Arg | | |
| 1460 | 1465 | 1470 |
| Gly Tyr Ala Ile Cys Gln Thr Thr Arg Pro Leu Ser Trp Val Glu Cys | | |
| 1475 | 1480 | 1485 |
| Arg Gly Ser Cys Pro Gly Gln Gly Cys Cys Gln Gly Leu Arg Leu Lys | | |
| 1490 | 1495 | 1500 |
| Arg Arg Lys Phe Thr Phe Glu Cys Ser Asp Gly Thr Ser Phe Ala Glu | | |
| 1505 | 1510 | 1515 |
| | | 1520 |
| Glu Val Glu Lys Pro Thr Lys Cys Gly Cys Ala Leu Cys Ala | | |
| 1525 | 1530 | |

<210> 31
 <211> 1531
 <212> PRT
 <213> Rattus norvegicus

| | | | | | | | | | | | | | | | |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 31 | | | | | | | | | | | | | | | |
| Met | Ala | Leu | Thr | Pro | Gln | Arg | Gly | Ser | Ser | Ser | Gly | Leu | Ser | Arg | Pro |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Glu | Leu | Trp | Leu | Leu | Leu | Trp | Ala | Ala | Ala | Trp | Arg | Leu | Gly | Ala | Thr |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ala | Cys | Pro | Ala | Leu | Cys | Thr | Cys | Thr | Gly | Thr | Thr | Val | Asp | Cys | His |
| | | 35 | | | | | 40 | | | | | | 45 | | |
| Gly | Thr | Gly | Leu | Gln | Ala | Ile | Pro | Lys | Asn | Ile | Pro | Arg | Asn | Thr | Glu |
| | 50 | | | | | 55 | | | | | | 60 | | | |
| Arg | Leu | Glu | Leu | Asn | Gly | Asn | Asn | Ile | Thr | Arg | Ile | His | Lys | Asn | Asp |
| | 65 | | | | 70 | | | | | 75 | | | | 80 | |
| Phe | Ala | Gly | Leu | Lys | Gln | Leu | Arg | Val | Leu | Gln | Leu | Met | Glu | Asn | Gln |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ile | Gly | Ala | Val | Glu | Arg | Gly | Ala | Phe | Asp | Asp | Met | Lys | Glu | Leu | Glu |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Arg | Leu | Arg | Leu | Asn | Arg | Asn | Gln | Leu | Gln | Val | Leu | Pro | Glu | Leu | Leu |
| | 115 | | | | | | 120 | | | | | 125 | | | |
| Phe | Gln | Asn | Asn | Gln | Ala | Leu | Ser | Arg | Leu | Asp | Leu | Ser | Glu | Asn | Ser |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Leu | Gln | Ala | Val | Pro | Arg | Lys | Ala | Phe | Arg | Gly | Ala | Thr | Asp | Leu | Lys |
| | 145 | | | | | 150 | | | | 155 | | | | 160 | |
| Asn | Leu | Gln | Leu | Asp | Lys | Asn | Gln | Ile | Ser | Cys | Ile | Glu | Glu | Gly | Ala |
| | | | 165 | | | | | | 170 | | | | | 175 | |

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Arg | Ala | Leu | Arg | Gly | Leu | Glu | Val | Leu | Thr | Leu | Asn | Asn | Asn | Asn | 180 | 185 | 190 |
| Ile | Thr | Thr | Ile | Pro | Val | Ser | Ser | Phe | Asn | His | Met | Pro | Lys | Leu | Arg | 195 | 200 | 205 |
| Thr | Phe | Arg | Leu | His | Ser | Asn | His | Leu | Phe | Cys | Asp | Cys | His | Leu | Ala | 210 | 215 | 220 |
| Trp | Leu | Ser | Gln | Trp | Leu | Arg | Gln | Arg | Pro | Thr | Ile | Gly | Leu | Phe | Thr | 225 | 230 | 235 |
| Gln | Cys | Ser | Gly | Pro | Ala | Ser | Leu | Arg | Gly | Leu | Asn | Val | Ala | Glu | Val | 245 | 250 | 255 |
| Gln | Lys | Ser | Glu | Phe | Ser | Cys | Ser | Gly | Gln | Gly | Glu | Ala | Ala | Gln | Val | 260 | 265 | 270 |
| Pro | Ala | Cys | Thr | Leu | Ser | Ser | Gly | Ser | Cys | Pro | Ala | Met | Cys | Ser | Cys | 275 | 280 | 285 |
| Ser | Asn | Gly | Ile | Val | Asp | Cys | Arg | Gly | Lys | Gly | Leu | Thr | Ala | Ile | Pro | 290 | 295 | 300 |
| Ala | Asn | Leu | Pro | Glu | Thr | Met | Thr | Glu | Ile | Arg | Leu | Glu | Leu | Asn | Gly | 305 | 310 | 315 |
| Ile | Lys | Ser | Ile | Pro | Pro | Gly | Ala | Phe | Ser | Pro | Tyr | Arg | Lys | Leu | Arg | 325 | 330 | 335 |
| Arg | Ile | Asp | Leu | Ser | Asn | Asn | Gln | Ile | Ala | Glu | Ile | Ala | Pro | Asp | Ala | 340 | 345 | 350 |
| Phe | Gln | Gly | Leu | Arg | Ser | Leu | Asn | Ser | Leu | Val | Leu | Tyr | Gly | Asn | Lys | 355 | 360 | 365 |
| Ile | Thr | Asp | Leu | Pro | Arg | Gly | Val | Phe | Gly | Gly | Leu | Tyr | Thr | Leu | Gln | 370 | 375 | 380 |
| Leu | Leu | Leu | Leu | Asn | Ala | Asn | Lys | Ile | Asn | Cys | Ile | Arg | Pro | Asp | Ala | 385 | 390 | 395 |
| Phe | Gln | Asp | Leu | Gln | Asn | Leu | Ser | Leu | Leu | Ser | Leu | Tyr | Asp | Asn | Lys | 405 | 410 | 415 |
| Ile | Gln | Ser | Leu | Ala | Lys | Gly | Thr | Phe | Thr | Ser | Leu | Arg | Ala | Ile | Gln | 420 | 425 | 430 |
| Thr | Leu | His | Leu | Ala | Gln | Asn | Pro | Phe | Ile | Cys | Asp | Cys | Asn | Leu | Lys | 435 | 440 | 445 |
| Trp | Leu | Ala | Asp | Phe | Leu | Arg | Thr | Asn | Pro | Ile | Glu | Thr | Thr | Gly | Ala | 450 | 455 | 460 |
| Arg | Cys | Ala | Ser | Pro | Arg | Arg | Leu | Ala | Asn | Lys | Arg | Ile | Gly | Gln | Ile | 465 | 470 | 475 |
| | | | | | | | | | | | | | | | | | | 480 |

Lys Ser Lys Lys Phe Arg Cys Ser Ala Lys Glu Gln Tyr Phe Ile Pro
 485 490 495
 Gly Thr Glu Asp Tyr His Leu Asn Ser Glu Cys Thr Ser Asp Val Ala
 500 505 510
 Cys Pro His Lys Cys Arg Cys Glu Ala Ser Val Val Glu Cys Ser Gly
 515 520 525
 Leu Lys Leu Ser Lys Ile Pro Glu Arg Ile Pro Gln Ser Thr Thr Glu
 530 535 540
 Leu Arg Leu Asn Asn Asn Glu Ile Ser Ile Leu Glu Ala Thr Gly Leu
 545 550 555 560
 Phe Lys Lys Leu Ser His Leu Lys Lys Ile Asn Leu Ser Asn Asn Lys
 565 570 575
 Val Ser Glu Ile Glu Asp Gly Thr Phe Glu Gly Ala Thr Ser Val Ser
 580 585 590
 Glu Leu His Leu Thr Ala Asn Gln Leu Glu Ser Val Arg Ser Gly Met
 595 600 605
 Phe Arg Gly Leu Asp Gly Leu Arg Thr Leu Met Leu Arg Asn Asn Arg
 610 615 620
 Ile Ser Cys Ile His Asn Asp Ser Phe Thr Gly Leu Arg Asn Val Arg
 625 630 635 640
 Leu Leu Ser Leu Tyr Asp Asn His Ile Thr Thr Ile Ser Pro Gly Ala
 645 650 655
 Phe Asp Thr Leu Gln Ala Leu Ser Thr Leu Asn Leu Leu Ala Asn Pro
 660 665 670
 Phe Asn Cys Asn Cys Gln Leu Ala Trp Leu Gly Asp Trp Leu Arg Lys
 675 680 685
 Arg Lys Ile Val Thr Gly Asn Pro Arg Cys Gln Asn Pro Asp Phe Leu
 690 695 700
 Arg Gln Ile Pro Leu Gln Asp Val Ala Phe Pro Asp Phe Arg Cys Glu
 705 710 715 720
 Glu Gly Gln Glu Glu Val Gly Cys Leu Pro Arg Pro Gln Cys Pro Gln
 725 730 735
 Glu Cys Ala Cys Leu Asp Thr Val Val Arg Cys Ser Asn Lys His Leu
 740 745 750
 Gln Ala Leu Pro Lys Gly Ile Pro Lys Asn Val Thr Glu Leu Tyr Leu
 755 760 765
 Asp Gly Asn Gln Phe Thr Leu Val Pro Gly Gln Leu Ser Thr Phe Lys
 770 775 780

Tyr Leu Gln Leu Val Asp Leu Ser Asn Asn Lys Ile Ser Ser Leu Ser
 785 790 795 800
 Asn Ser Ser Phe Thr Asn Met Ser Gln Leu Thr Thr Leu Ile Leu Ser
 805 810 815
 Tyr Asn Ala Leu Gln Cys Ile Pro Pro Leu Ala Phe Gln Gly Leu Arg
 820 825 830
 Ser Leu Arg Leu Leu Ser Leu His Gly Asn Asp Val Ser Thr Leu Gln
 835 840 845
 Glu Gly Ile Phe Ala Asp Val Thr Ser Leu Ser His Leu Ala Ile Gly
 850 855 860
 Ala Asn Pro Leu Tyr Cys Asp Cys His Leu Arg Trp Leu Ser Ser Trp
 865 870 875 880
 Val Lys Thr Gly Tyr Lys Glu Pro Gly Ile Ala Arg Cys Ala Gly Pro
 885 890 895
 Pro Glu Met Glu Gly Lys Leu Leu Leu Thr Thr Pro Ala Lys Lys Phe
 900 905 910
 Glu Cys Gln Gly Pro Pro Ser Leu Ala Val Gln Ala Lys Cys Asp Pro
 915 920 925
 Cys Leu Ser Ser Pro Cys Gln Asn Gln Gly Thr Cys His Asn Asp Pro
 930 935 940
 Leu Glu Val Tyr Arg Cys Thr Cys Pro Ser Gly Tyr Lys Gly Arg Asn
 945 950 955 960
 Cys Glu Val Ser Leu Asp Ser Cys Ser Ser Asn Pro Cys Gly Asn Gly
 965 970 975
 Gly Thr Cys His Ala Gln Glu Gly Glu Asp Ala Gly Phe Thr Cys Ser
 980 985 990
 Cys Pro Ser Gly Phe Glu Gly Leu Thr Cys Gly Met Asn Thr Asp Asp
 995 1000 1005
 Cys Val Lys His Asp Cys Val Asn Gly Gly Val Cys Val Asp Gly Ile
 1010 1015 1020
 Gly Asn Tyr Thr Cys Gln Cys Pro Leu Gln Tyr Thr Gly Arg Ala Cys
 1025 1030 1035 1040
 Glu Gln Leu Val Asp Phe Cys Ser Pro Asp Leu Asn Pro Cys Gln His
 1045 1050 1055
 Glu Ala Gln Cys Val Gly Thr Pro Glu Gly Pro Arg Cys Glu Cys Val
 1060 1065 1070
 Pro Gly Tyr Thr Gly Asp Asn Cys Ser Lys Asn Gln Asp Asp Cys Lys
 1075 1080 1085

Asp His Gln Cys Gln Asn Gly Ala Gln Cys Val Asp Glu Ile Asn Ser
 1090 1095 1100

Tyr Ala Cys Leu Cys Ala Glu Gly Tyr Ser Gly Gln Leu Cys Glu Ile
 1105 1110 1115 1120

Pro Pro Ala Pro Arg Asn Ser Cys Glu Gly Thr Glu Cys Gln Asn Gly
 1125 1130 1135

Ala Asn Cys Val Asp Gln Gly Ser Arg Pro Val Cys Gln Cys Leu Pro
 1140 1145 1150

Gly Phe Gly Gly Pro Glu Cys Glu Lys Leu Leu Ser Val Asn Phe Val
 1155 1160 1165

Asp Arg Asp Thr Tyr Leu Gln Phe Thr Asp Leu Gln Asn Trp Pro Arg
 1170 1175 1180

Ala Asn Ile Thr Leu Gln Val Ser Thr Ala Glu Asp Asn Gly Ile Leu
 1185 1190 1195 1200

Leu Tyr Asn Gly Asp Asn Asp His Ile Ala Val Glu Leu Tyr Gln Gly
 1205 1210 1215

His Val Arg Val Ser Tyr Asp Pro Gly Ser Tyr Pro Ser Ser Ala Ile
 1220 1225 1230

Tyr Ser Ala Glu Thr Ile Asn Asp Gly Gln Phe His Thr Val Glu Leu
 1235 1240 1245

Val Thr Phe Asp Gln Met Val Asn Leu Ser Ile Asp Gly Gly Ser Pro
 1250 1255 1260

Met Thr Met Asp Asn Phe Gly Lys His Tyr Thr Leu Asn Ser Glu Ala
 1265 1270 1275 1280

Pro Leu Tyr Val Gly Gly Met Pro Val Asp Val Asn Ser Ala Ala Phe
 1285 1290 1295

Arg Leu Trp Gln Ile Leu Asn Gly Thr Ser Phe His Gly Cys Ile Arg
 1300 1305 1310

Asn Leu Tyr Ile Asn Asn Glu Leu Gln Asp Phe Thr Lys Thr Gln Met
 1315 1320 1325

Lys Pro Gly Val Val Pro Gly Cys Glu Pro Cys Arg Lys Leu Tyr Cys
 1330 1335 1340

Leu His Gly Ile Cys Gln Pro Asn Ala Thr Pro Gly Pro Val Cys His
 1345 1350 1355 1360

Cys Glu Ala Gly Trp Gly Gly Leu His Cys Asp Gln Pro Val Asp Gly
 1365 1370 1375

Pro Cys His Gly His Lys Cys Val His Gly Lys Cys Val Pro Leu Asp
 1380 1385 1390

Ala Leu Ala Tyr Ser Cys Gln Cys Gln Asp Gly Tyr Ser Gly Ala Leu
 1395 1400 1405

Cys Asn Gln Val Gly Ala Val Ala Glu Pro Cys Gly Gly Leu Gln Cys
 1410 1415 1420

Leu His Gly His Cys Gln Ala Ser Ala Thr Arg Gly Ala His Cys Val
 1425 1430 1435 1440

Cys Ser Pro Gly Phe Ser Gly Glu Leu Cys Glu Gln Glu Ser Glu Cys
 1445 1450 1455

Arg Gly Asp Pro Val Arg Asp Phe His Arg Val Gln Arg Gly Tyr Ala
 1460 1465 1470

Ile Cys Gln Thr Thr Arg Pro Leu Ser Trp Val Glu Cys Arg Gly Ala
 1475 1480 1485

Cys Pro Gly Gln Gly Cys Cys Gln Gly Leu Arg Leu Lys Arg Arg Lys
 1490 1495 1500

Leu Thr Phe Glu Cys Ser Asp Gly Thr Ser Phe Ala Glu Glu Val Glu
 1505 1510 1515 1520

Lys Pro Thr Lys Cys Gly Cys Ala Pro Cys Ala
 1525 1530

<210> 32

<211> 1512

<212> PRT

<213> Danio rerio

<400> 32

Met Phe Val Leu Lys Ser Val Val Leu Cys Ala Leu Leu Cys Gly Ala
 1 5 10 15

Gly Ala Gln Ser Cys Pro Ser Gln Cys Ser Cys Ser Gly Thr Ala Val
 20 25 30

Asp Cys His Gly Gln Ser Leu Arg Ser Val Pro Arg Asn Ile Pro Arg
 35 40 45

Asn Val Glu Arg Leu Asp Leu Asn Ala Asn Asn Leu Thr Lys Ile Thr
 50 55 60

Lys Ala Asp Phe Ala Gly Leu Lys Asn Leu Arg Val Leu Gln Leu Met
 65 70 75 80

Glu Asn Lys Ile Ser Ser Ile Glu Arg Gly Ala Phe Gln Asp Leu Gln
 85 90 95

Glu Leu Glu Arg Leu Arg Leu Asn Arg Asn Asn Leu Gln Val Leu Pro
 100 105 110

Glu Leu Leu Phe Leu Gly Thr Thr Lys Leu Phe Arg Leu Asp Leu Ser
 115 120 125

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Asn | Gln | Ile | Gln | Gly | Ile | Pro | Arg | Lys | Ala | Phe | Arg | Gly | Ser | Thr | 130 | 135 | 140 | |
| Glu | Ile | Lys | Asn | Leu | Gln | Leu | Asp | Tyr | Asn | Gln | Ile | Ser | Cys | Ile | Glu | 145 | 150 | 155 | 160 |
| Asp | Gly | Ala | Phe | Arg | Ala | Leu | Gly | Asp | Leu | Glu | Val | Leu | Thr | Leu | Asn | 165 | 170 | 175 | |
| Asn | Asn | Asn | Ile | Ser | Arg | Leu | Ser | Val | Ala | Ser | Phe | Asn | His | Met | Pro | 180 | 185 | 190 | |
| Lys | Leu | Arg | Thr | Phe | Arg | Leu | His | Ser | Asn | Asn | Leu | Leu | Cys | Asp | Cys | 195 | 200 | 205 | |
| Asn | Val | Ala | Trp | Leu | Ser | Asp | Trp | Leu | Arg | Gln | Arg | Pro | Arg | Leu | Gly | 210 | 215 | 220 | |
| Leu | Tyr | Thr | Gln | Cys | Met | Ala | Pro | Pro | Ser | Leu | Arg | Gly | His | Asn | Ile | 225 | 230 | 235 | 240 |
| Ala | Glu | Val | Gln | Lys | Lys | Glu | Phe | Met | Cys | Thr | Gly | Pro | Gln | Ser | His | 245 | 250 | 255 | |
| Ser | Ser | Cys | Ser | Val | Leu | Gln | Cys | Pro | Glu | Leu | Cys | Thr | Cys | Ser | Asn | 260 | 265 | 270 | |
| Asn | Val | Val | Asp | Cys | Arg | Gly | Lys | Gly | Leu | Thr | Glu | Ile | Pro | Thr | Asn | 275 | 280 | 285 | |
| Leu | Pro | Glu | Thr | Ile | Thr | Glu | Ile | Arg | Leu | Glu | Gln | Asn | Ser | Ile | Lys | 290 | 295 | 300 | |
| Ile | Ile | Pro | Ala | Gly | Ala | Phe | Ala | Pro | Tyr | Lys | Arg | Leu | Arg | Arg | Ile | 305 | 310 | 315 | 320 |
| Asp | Leu | Ser | Asn | Asn | Gln | Ile | Thr | Glu | Leu | Ala | Ser | Asp | Ser | Phe | Gln | 325 | 330 | 335 | |
| Gly | Leu | Arg | Ser | Leu | Asn | Ser | Leu | Val | Leu | Tyr | Gly | Asn | Lys | Ile | Thr | 340 | 345 | 350 | |
| Glu | Leu | Pro | Lys | Gly | Leu | Phe | Asp | Gly | Leu | Phe | Ser | Leu | Gln | Leu | Leu | 355 | 360 | 365 | |
| Leu | Leu | Asn | Ala | Asn | Lys | Ile | Asn | Cys | Leu | Arg | Val | Asp | Ser | Phe | Gln | 370 | 375 | 380 | |
| Asp | Leu | Gln | Asn | Leu | Asn | Leu | Leu | Ser | Leu | Tyr | Asp | Asn | Lys | Leu | Gln | 385 | 390 | 395 | 400 |
| Thr | Ile | Ala | Lys | Gly | Thr | Phe | Ser | Ser | Leu | Arg | Ala | Ile | Gln | Thr | Leu | 405 | 410 | 415 | |
| His | Leu | Ala | Gln | Asn | Pro | Phe | Met | Cys | Asp | Cys | His | Leu | Lys | Trp | Leu | 420 | 425 | 430 | |

Ala Asp Tyr Leu Gln Asp Asn Pro Ile Glu Thr Ser Gly Ala Arg Cys
 435 440 445
 Thr Ser Pro Arg Arg Leu Ala Asn Lys Arg Ile Gly Gln Ile Lys Ser
 450 455 460
 Lys Lys Phe Arg Cys Ser Gly Val Glu Asp Tyr Arg Ser Lys Leu Gly
 465 470 475 480
 Gly Asp Cys Phe Ala Asp Leu Ala Cys Pro Glu Lys Cys Arg Cys Glu
 485 490 495
 Gly Thr Thr Val Asp Cys Ser Gly Gln Lys Leu Thr Lys Ile Pro Asp
 500 505 510
 His Ile Pro Gln Tyr Thr Ala Glu Leu Arg Leu Asn Asn Asn Glu Phe
 515 520 525
 Thr Val Leu Glu Ala Thr Gly Ile Phe Lys Lys Leu Pro Gln Leu Arg
 530 535 540
 Lys Ile Asn Leu Ser Asn Asn Lys Ile Thr Asp Ile Glu Glu Gly Thr
 545 550 555 560
 Phe Glu Gly Ala Ser Gly Val Asn Glu Leu Ile Leu Thr Ser Asn Arg
 565 570 575
 Leu Glu Gly Val His Tyr Ser Met Leu Lys Gly Leu Gly Gly Leu Arg
 580 585 590
 Thr Leu Met Leu Arg Ser Asn Arg Ile Ser Cys Val Asn Asn Gly Ser
 595 600 605
 Phe Thr Gly Leu Ser Ser Val Arg Leu Leu Ser Leu Tyr Asp Asn Leu
 610 615 620
 Ile Thr Ser Met Ser Pro Gly Ala Phe Asp Thr Leu His Ser Leu Ser
 625 630 635 640
 Thr Leu Asn Leu Leu Ala Asn Pro Phe Asn Cys Asn Cys His Leu Ala
 645 650 655
 Trp Leu Gly Glu Trp Leu Arg Lys Lys Arg Ile Val Thr Gly Asn Pro
 660 665 670
 Arg Cys Gln Ser Pro Tyr Phe Leu Lys Glu Ile Pro Ile Gln Asp Val
 675 680 685
 Ala Val Gln Asp Phe Ala Cys Glu Glu Gly Asn Asp Glu Asn Ser Cys
 690 695 700
 Ser Pro Leu Ala Arg Cys Pro Ala Glu Cys Ser Cys Leu Asp Thr Val
 705 710 715 720
 Val Arg Cys Ser Asn Lys Gly Leu Lys Val Leu Pro Lys Gly Ile Pro
 725 730 735

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| Arg | Asp | Val | Thr | Glu | Leu | Tyr | Leu | Asp | Gly | Asn | Glu | Phe | Thr | Gln | Val | 740 | 745 | 750 |
| Pro | Leu | Glu | Leu | Ser | Asn | Tyr | Lys | His | Leu | Thr | Leu | Ile | Asp | Leu | Ser | 755 | 760 | 765 |
| Asn | Asn | Gln | Ile | Ser | Thr | Leu | Ser | Asn | His | Ser | Phe | Ser | Asn | Met | Ser | 770 | 775 | 780 |
| Glu | Leu | Leu | Thr | Leu | Ile | Leu | Ser | Tyr | Asn | Arg | Leu | Arg | Cys | Ile | Pro | 785 | 790 | 795 |
| Ala | Lys | Ala | Phe | Asp | Gly | Leu | Lys | Ser | Leu | Arg | Leu | Leu | Ser | Leu | His | 805 | 810 | 815 |
| Gly | Asn | Asp | Ile | Ala | Val | Ile | Pro | Asp | Gly | Ala | Phe | Lys | Asp | Leu | Ser | 820 | 825 | 830 |
| Ser | Leu | Ser | His | Leu | Ala | Leu | Gly | Ala | Asn | Pro | Leu | Tyr | Cys | Asp | Cys | 835 | 840 | 845 |
| His | Met | Gln | Trp | Leu | Ser | Asp | Trp | Val | Lys | Ser | Gly | Tyr | Lys | Glu | Pro | 850 | 855 | 860 |
| Gly | Ile | Ala | Arg | Cys | Thr | Gly | Pro | Gly | Asp | Met | Thr | Asp | Lys | Leu | Leu | 865 | 870 | 875 |
| Leu | Thr | Thr | Pro | Ser | Lys | Lys | Phe | Thr | Cys | Thr | Gly | Pro | Val | Asp | Val | 885 | 890 | 895 |
| Ser | Ile | Leu | Ala | Lys | Cys | Asn | Pro | Cys | Leu | Ser | Asn | Pro | Cys | Lys | Asn | 900 | 905 | 910 |
| Asp | Gly | Thr | Cys | Ser | Asn | His | Pro | Val | Asp | Phe | Tyr | Arg | Cys | Thr | Cys | 915 | 920 | 925 |
| Pro | Tyr | Gly | Phe | Lys | Gly | Gln | Asp | Cys | Glu | Glu | Pro | Ile | His | Ala | Cys | 930 | 935 | 940 |
| Ile | Ser | Asn | Pro | Cys | Gln | Asn | Gly | Gly | Thr | Cys | His | Leu | Lys | Asp | Gly | 945 | 950 | 955 |
| Glu | Glu | Asn | Thr | His | Trp | Cys | Val | Cys | Pro | Glu | Gly | Phe | Glu | Gly | Asp | 965 | 970 | 975 |
| Glu | Cys | Glu | Ile | Asn | Ile | Asp | Asp | Cys | Glu | Asp | Asn | Asp | Cys | Glu | Asn | 980 | 985 | 990 |
| Asn | Ser | Thr | Cys | Val | Asp | Gly | Ile | Asn | Asn | Tyr | Thr | Cys | Leu | Cys | Ser | 995 | 1000 | 1005 |
| Pro | Glu | Tyr | Thr | Gly | Glu | Leu | Cys | Glu | Asp | Lys | Leu | Asp | Phe | Cys | Ala | 1010 | 1015 | 1020 |
| Ser | Glu | Leu | Asn | Leu | Cys | Gln | His | Asp | Ser | Lys | Cys | Ile | Leu | Thr | Ala | 1025 | 1030 | 1035 |
| | | | | | | | | | | | | | | | | | | 1040 |

Lys Gly Phe Met Cys Glu Cys Thr Pro Gly Tyr Thr Gly Glu His Cys
 1045 1050 1055
 Glu Val Asp Phe Asp Asp Cys Glu Asp Asn Lys Cys Lys Asn Gly Ala
 1060 1065 1070
 Gln Cys Ile Asp Ala Val Asn Gly Tyr Thr Cys Val Cys Pro Glu Gly
 1075 1080 1085
 Tyr Ser Gly Leu Phe Cys Glu Phe Ser Pro Pro Met Val Leu Pro Arg
 1090 1095 1100
 Thr Ser Pro Cys Asp His Tyr Asp Cys Ala Asn Gly Ala Gln Cys Val
 1105 1110 1115 1120
 Val Lys Asp Thr Asp Pro Val Cys Gln Cys Leu Pro Gly Tyr Glu Gly
 1125 1130 1135
 Val His Cys Glu Arg Leu Val Ser Val Asn Phe Ile Asn Arg Glu Ser
 1140 1145 1150
 Phe Leu Gln Ile Pro Ser Asn Leu Ile Thr Glu Gln Ala Asn Ile Ser
 1155 1160 1165
 Leu Gln Ile Ala Thr Asp Glu Asp Asn Gly Val Leu Leu Tyr Lys Gly
 1170 1175 1180
 Asp Asn Glu His Ile Ala Val Glu Leu Tyr Arg Gly Arg Leu Arg Val
 1185 1190 1195 1200
 Ser Tyr Asp Ser Gly Ser Tyr Pro Pro Ser Ala Ile Tyr Ser Val Glu
 1205 1210 1215
 Thr Ile Asn Asp Gly Ser Phe His Val Val Glu Leu Val Ala Lys Asp
 1220 1225 1230
 Gln Ser Leu Ser Leu Ser Ile Asp Gly Gly Ser Pro Lys Ser Ile Asn
 1235 1240 1245
 Thr Ala Asn Ser Pro Ser Pro Val Pro Ser Pro Ala Pro Leu Tyr Leu
 1250 1255 1260
 Gly Gly Leu Pro Gln Gln Ser Gly Leu Ala Ser Leu Arg Gln Gly Ser
 1265 1270 1275 1280
 Gly Arg Asn Gly Ser Ser Phe His Gly Cys Ile Arg Asn Leu Tyr Ile
 1285 1290 1295
 Asn Asp Gln Leu Gln Asp Leu Thr Gln Phe Leu Leu Gln Glu Gly Val
 1300 1305 1310
 Val Pro Gly Cys Gln Pro Cys Gln Arg Ser Met Cys Ala His Gly Gln
 1315 1320 1325
 Cys His Ala Thr Gly Gln Ser Ser Phe Ser Cys Glu Cys Glu Ala Gly
 1330 1335 1340

Trp Thr Gly Pro Leu Cys Asp Gln Gln Val Asn Asn Pro Cys Asp Gly
1345 1350 1355 1360

Asn Lys Cys Ile His Gly Ser Cys Met Ala Ile Asn Ser Tyr Ser Tyr
1365 1370 1375

Ser Cys Arg Cys Leu Pro Gly Phe Ala Gly Val Leu Cys Asp Glu Glu
1380 1385 1390

Glu Gln Leu Ser Pro Cys Gln Tyr Ile Ala Cys Lys Tyr Gly Arg Cys
1395 1400 1405

Arg Val Ser Gly Leu Gly Lys Ala Tyr Cys Glu Cys Asn Ser Gly Tyr
1410 1415 1420

Thr Gly Gln Ser Cys Asp Arg Glu Met Ala Cys Arg Gly Glu Arg Val
1425 1430 1435 1440

Arg Asp His Tyr Gln Thr Gln Gln Gly Tyr Ala Ala Cys Gln Ser Thr
1445 1450 1455

Glu Lys Val Ser Arg Leu Glu Cys Arg Gly Ser Cys Gly Asp Gly Thr
1460 1465 1470

Ser Cys Cys Ala Pro Leu Arg Ser Lys Arg Arg Lys Tyr Thr Phe Gln
1475 1480 1485

Cys Thr Asp Gly Ser Ser Phe Val Gln Glu Val Glu Lys Val Val Lys
1490 1495 1500

Cys Gly Cys Thr Lys Cys Pro Ser
1505 1510

<210> 33

<211> 727

<212> PRT

<213> Mus musculus

<400> 33

Met Trp Trp Arg Asn Ala Pro Ala Thr Glu Glu Asn Gly Pro Phe Leu
1 5 10 15

Arg Lys Cys Phe Ala Ile Ser Leu Leu Val Ile Cys Ile Ile Ile Ser
20 25 30

Ile Gly Ile Phe Tyr Gly Phe Val Ala Asn His Gln Val Arg Thr Arg
35 40 45

Ile Lys Arg Ser Arg Lys Leu Ala Asp Ser Asn Phe Lys Asp Leu Arg
50 55 60

Thr Leu Leu Asn Glu Thr Pro Glu Gln Ile Lys Tyr Ile Leu Ala Gln
65 70 75 80

Tyr Asn Thr Thr Lys Asp Lys Ala Phe Thr Asp Leu Asn Ser Ile Asn

| 85 | | | | | 90 | | | | | 95 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Val | Leu | Gly | Gly | Gly | Ile | Leu | Asp | Arg | Leu | Arg | Pro | Asn | Ile | Ile |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Pro | Val | Leu | Asp | Glu | Ile | Lys | Ser | Met | Ala | Thr | Ala | Ile | Lys | Glu | Thr |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Lys | Glu | Ala | Leu | Glu | Asn | Met | Asn | Ser | Thr | Leu | Lys | Ser | Leu | His | Gln |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Gln | Ser | Thr | Gln | Leu | Ser | Ser | Ser | Leu | Thr | Ser | Val | Lys | Thr | Ser | Leu |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Arg | Ser | Ser | Leu | Asn | Asp | Pro | Leu | Cys | Leu | Val | His | Pro | Ser | Ser | Glu |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Thr | Cys | Asn | Ser | Ile | Arg | Leu | Ser | Leu | Ser | Gln | Leu | Asn | Ser | Asn | Pro |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Glu | Leu | Arg | Gln | Leu | Pro | Pro | Val | Asp | Ala | Glu | Leu | Asp | Asn | Val | Asn |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Asn | Val | Leu | Arg | Thr | Asp | Leu | Asp | Gly | Leu | Val | Gln | Gln | Gly | Tyr | Gln |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Ser | Leu | Asn | Asp | Ile | Pro | Asp | Arg | Val | Gln | Arg | Gln | Thr | Thr | Thr | Val |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Val | Ala | Gly | Ile | Lys | Arg | Val | Leu | Asn | Ser | Ile | Gly | Ser | Asp | Ile | Asp |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Asn | Val | Thr | Gln | Arg | Leu | Pro | Ile | Gln | Asp | Ile | Leu | Ser | Ala | Phe | Ser |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Val | Tyr | Val | Asn | Asn | Thr | Glu | Ser | Tyr | Ile | His | Arg | Asn | Leu | Pro | Thr |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Leu | Glu | Glu | Tyr | Asp | Ser | Tyr | Trp | Trp | Leu | Gly | Gly | Leu | Val | Ile | Cys |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Ser | Leu | Leu | Thr | Leu | Ile | Val | Ile | Phe | Tyr | Tyr | Leu | Gly | Leu | Leu | Cys |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Gly | Val | Cys | Gly | Tyr | Asp | Arg | His | Ala | Thr | Pro | Thr | Thr | Arg | Gly | Cys |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Val | Ser | Asn | Thr | Gly | Gly | Val | Phe | Leu | Met | Val | Gly | Val | Gly | Leu | Ser |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Phe | Leu | Phe | Cys | Trp | Ile | Leu | Met | Ile | Ile | Val | Val | Leu | Thr | Phe | Val |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Phe | Gly | Ala | Asn | Val | Glu | Lys | Leu | Ile | Cys | Glu | Pro | Tyr | Thr | Ser | Lys |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Glu | Leu | Phe | Arg | Val | Leu | Asp | Thr | Pro | Tyr | Leu | Leu | Asn | Glu | Asp | Trp |

| | | | | | | |
|---|-----|-----|-----|-----|-----|-----|
| 385 | | 390 | | 395 | | 400 |
| Glu Tyr Tyr Leu Ser Gly Lys Leu Phe Asn Lys Ser Lys Met Lys Leu | | | | | | |
| | 405 | | 410 | | 415 | |
| Thr Phe Glu Gln Val Tyr Ser Asp Cys Lys Lys Asn Arg Gly Thr Tyr | | | | | | |
| | 420 | | 425 | | 430 | |
| Gly Thr Leu His Leu Gln Asn Ser Phe Asn Ile Ser Glu His Leu Asn | | | | | | |
| | 435 | | 440 | | 445 | |
| Ile Asn Glu His Thr Gly Ser Ile Ser Ser Glu Leu Glu Ser Leu Lys | | | | | | |
| | 450 | | 455 | | 460 | |
| Val Asn Leu Asn Ile Phe Leu Leu Gly Ala Ala Gly Arg Lys Asn Leu | | | | | | |
| | 465 | | 470 | | 475 | 480 |
| Gln Asp Phe Ala Ala Cys Gly Ile Asp Arg Met Asn Tyr Asp Ser Tyr | | | | | | |
| | | 485 | | 490 | | 495 |
| Leu Ala Gln Thr Gly Lys Ser Pro Ala Gly Val Asn Leu Leu Ser Phe | | | | | | |
| | 500 | | 505 | | 510 | |
| Ala Tyr Asp Leu Glu Ala Lys Ala Asn Ser Leu Pro Pro Gly Asn Leu | | | | | | |
| | 515 | | 520 | | 525 | |
| Arg Asn Ser Leu Lys Arg Asp Ala Gln Thr Ile Lys Thr Ile His Gln | | | | | | |
| | 530 | | 535 | | 540 | |
| Gln Arg Val Leu Pro Ile Glu Gln Ser Leu Ser Thr Leu Tyr Gln Ser | | | | | | |
| | 545 | | 550 | | 555 | 560 |
| Val Lys Ile Leu Gln Arg Thr Gly Asn Gly Leu Leu Glu Arg Val Thr | | | | | | |
| | | 565 | | 570 | | 575 |
| Arg Ile Leu Ala Ser Leu Asp Phe Ala Gln Asn Phe Ile Thr Asn Asn | | | | | | |
| | 580 | | 585 | | 590 | |
| Thr Ser Ser Val Ile Ile Glu Glu Thr Lys Lys Tyr Gly Arg Thr Ile | | | | | | |
| | 595 | | 600 | | 605 | |
| Ile Gly Tyr Phe Glu His Tyr Leu Gln Trp Ile Glu Phe Ser Ile Ser | | | | | | |
| | 610 | | 615 | | 620 | |
| Glu Lys Val Ala Ser Cys Lys Pro Val Ala Thr Ala Leu Asp Thr Ala | | | | | | |
| | 625 | | 630 | | 635 | 640 |
| Val Asp Val Phe Leu Cys Ser Tyr Ile Ile Asp Pro Leu Asn Leu Phe | | | | | | |
| | | 645 | | 650 | | 655 |
| Trp Phe Gly Ile Gly Lys Ala Thr Val Phe Leu Leu Pro Ala Leu Ile | | | | | | |
| | 660 | | 665 | | 670 | |
| Phe Ala Val Lys Leu Ala Lys Tyr Tyr Arg Arg Met Asp Ser Glu Asp | | | | | | |
| | 675 | | 680 | | 685 | |
| Val Tyr Asp Asp Val Glu Thr Ile Pro Met Lys Asn Met Glu Asn Gly | | | | | | |

690

695

700

Asn Asn Gly Tyr His Lys Asp His Val Tyr Gly Ile His Asn Pro Val
 705 710 715 720

Met Thr Ser Pro Ser Gln His
 725

<210> 34

<211> 856

<212> PRT

<213> Homo sapiens

<400> 34

Met Ala Leu Val Leu Gly Ser Leu Leu Leu Leu Gly Leu Cys Gly Asn
 1 5 10 15

Ser Phe Ser Gly Gly Gln Pro Ser Ser Thr Asp Ala Pro Lys Ala Trp
 20 25 30

Asn Tyr Glu Leu Pro Ala Thr Asn Tyr Glu Thr Gln Asp Ser His Lys
 35 40 45

Ala Gly Pro Ile Gly Ile Leu Phe Glu Leu Val His Ile Phe Leu Tyr
 50 55 60

Val Val Gln Pro Arg Asp Phe Pro Glu Asp Thr Leu Arg Lys Phe Leu
 65 70 75 80

Gln Lys Ala Tyr Glu Ser Lys Ile Asp Tyr Asp Lys Ile Val Tyr Tyr
 85 90 95

Glu Ala Gly Ile Ile Leu Cys Cys Val Leu Gly Leu Leu Phe Ile Ile
 100 105 110

Leu Met Pro Leu Val Gly Tyr Phe Phe Cys Met Cys Arg Cys Cys Asn
 115 120 125

Lys Cys Gly Gly Glu Met His Gln Arg Gln Lys Glu Asn Gly Pro Phe
 130 135 140

Leu Arg Lys Cys Phe Ala Ile Ser Leu Leu Val Ile Cys Ile Ile Ile
 145 150 155 160

Ser Ile Gly Ile Phe Tyr Gly Phe Val Ala Asn His Gln Val Arg Thr
 165 170 175

Arg Ile Lys Arg Ser Arg Lys Leu Ala Asp Ser Asn Phe Lys Asp Leu
 180 185 190

Arg Thr Leu Leu Asn Glu Thr Pro Glu Gln Ile Lys Tyr Ile Leu Ala
 195 200 205

Gln Tyr Asn Thr Thr Lys Asp Lys Ala Phe Thr Asp Leu Asn Ser Ile
 210 215 220

Asn Ser Val Leu Gly Gly Gly Ile Leu Asp Arg Leu Arg Pro Asn Ile
 225 230 235 240
 Ile Pro Val Leu Asp Glu Ile Lys Ser Met Ala Thr Ala Ile Lys Glu
 245 250 255
 Thr Lys Glu Ala Leu Glu Asn Met Asn Ser Thr Leu Lys Ser Leu His
 260 265 270
 Gln Gln Ser Thr Gln Leu Ser Ser Ser Leu Thr Ser Val Lys Thr Ser
 275 280 285
 Leu Arg Ser Ser Leu Asn Asp Pro Leu Cys Leu Val His Pro Ser Ser
 290 295 300
 Glu Thr Cys Asn Ser Ile Arg Leu Ser Leu Ser Gln Leu Asn Ser Asn
 305 310 315 320
 Pro Glu Leu Arg Gln Leu Pro Pro Val Asp Ala Glu Leu Asp Asn Val
 325 330 335
 Asn Asn Val Leu Arg Thr Asp Leu Asp Gly Leu Val Gln Gln Gly Tyr
 340 345 350
 Gln Ser Leu Asn Asp Ile Pro Asp Arg Val Gln Arg Gln Thr Thr Thr
 355 360 365
 Val Val Ala Gly Ile Lys Arg Val Leu Asn Ser Ile Gly Ser Asp Ile
 370 375 380
 Asp Asn Val Thr Gln Arg Leu Pro Ile Gln Asp Ile Leu Ser Ala Phe
 385 390 395 400
 Ser Val Tyr Val Asn Asn Thr Glu Ser Tyr Ile His Arg Asn Leu Pro
 405 410 415
 Thr Leu Glu Glu Tyr Asp Ser Tyr Trp Trp Leu Gly Gly Leu Val Ile
 420 425 430
 Cys Ser Leu Leu Thr Leu Ile Val Ile Phe Tyr Tyr Leu Gly Leu Leu
 435 440 445
 Cys Gly Val Cys Gly Tyr Asp Arg His Ala Thr Pro Thr Thr Arg Gly
 450 455 460
 Cys Val Ser Asn Thr Gly Gly Val Phe Leu Met Val Gly Val Gly Leu
 465 470 475 480
 Ser Phe Leu Phe Cys Trp Ile Leu Met Ile Ile Val Val Leu Thr Phe
 485 490 495
 Val Phe Gly Ala Asn Val Glu Lys Leu Ile Cys Glu Pro Tyr Thr Ser
 500 505 510
 Lys Glu Leu Phe Arg Val Leu Asp Thr Pro Tyr Leu Leu Asn Glu Asp
 515 520 525

Trp Glu Tyr Tyr Leu Ser Gly Lys Leu Phe Asn Lys Ser Lys Met Lys
 530 535 540

Leu Thr Phe Glu Gln Val Tyr Ser Asp Cys Lys Lys Asn Arg Gly Thr
 545 550 555 560

Tyr Gly Thr Leu His Leu Gln Asn Ser Phe Asn Ile Ser Glu His Leu
 565 570 575

Asn Ile Asn Glu His Thr Gly Ser Ile Ser Ser Glu Leu Glu Ser Leu
 580 585 590

Lys Val Asn Leu Asn Ile Phe Leu Leu Gly Ala Ala Gly Arg Lys Asn
 595 600 605

Leu Gln Asp Phe Ala Ala Cys Gly Ile Asp Arg Met Asn Tyr Asp Ser
 610 615 620

Tyr Leu Ala Gln Thr Gly Lys Ser Pro Ala Gly Val Asn Leu Leu Ser
 625 630 635 640

Phe Ala Tyr Asp Leu Glu Ala Lys Ala Asn Ser Leu Pro Pro Gly Asn
 645 650 655

Leu Arg Asn Ser Leu Lys Arg Asp Ala Gln Thr Ile Lys Thr Ile His
 660 665 670

Gln Gln Arg Val Leu Pro Ile Glu Gln Ser Leu Ser Thr Leu Tyr Gln
 675 680 685

Ser Val Lys Ile Leu Gln Arg Thr Gly Asn Gly Leu Leu Glu Arg Val
 690 695 700

Thr Arg Ile Leu Ala Ser Leu Asp Phe Ala Gln Asn Phe Ile Thr Asn
 705 710 715 720

Asn Thr Ser Ser Val Ile Ile Glu Glu Thr Lys Lys Tyr Gly Arg Thr
 725 730 735

Ile Ile Gly Tyr Phe Glu His Tyr Leu Gln Trp Ile Glu Phe Ser Ile
 740 745 750

Ser Glu Lys Val Ala Ser Cys Lys Pro Val Ala Thr Ala Leu Asp Thr
 755 760 765

Ala Val Asp Val Phe Leu Cys Ser Tyr Ile Ile Asp Pro Leu Asn Leu
 770 775 780

Phe Trp Phe Gly Ile Gly Lys Ala Thr Val Phe Leu Leu Pro Ala Leu
 785 790 795 800

Ile Phe Ala Val Lys Leu Ala Lys Tyr Tyr Arg Arg Met Asp Ser Glu
 805 810 815

Asp Val Tyr Asp Asp Val Glu Thr Ile Pro Met Lys Asn Met Glu Asn
 820 825 830

Gly Asn Asn Gly Tyr His Lys Asp His Val Tyr Gly Ile His Asn Pro
835 840 845

Val Met Thr Ser Pro Ser Gln His
850 855

<210> 35
<211> 865
<212> PRT
<213> Homo sapiens

<400> 35
Met Ala Leu Val Leu Gly Ser Leu Leu Leu Leu Gly Leu Cys Gly Asn
1 5 10 15

Ser Phe Ser Gly Gly Gln Pro Ser Ser Thr Asp Ala Pro Lys Ala Trp
20 25 30

Asn Tyr Glu Leu Pro Ala Thr Asn Tyr Glu Thr Gln Asp Ser His Lys
35 40 45

Ala Gly Pro Ile Gly Ile Leu Phe Glu Leu Val His Ile Phe Leu Tyr
50 55 60

Val Val Gln Pro Arg Asp Phe Pro Glu Asp Thr Leu Arg Lys Phe Leu
65 70 75 80

Gln Lys Ala Tyr Glu Ser Lys Ile Asp Tyr Asp Lys Pro Glu Thr Val
85 90 95

Ile Leu Gly Leu Lys Ile Val Tyr Tyr Glu Ala Gly Ile Ile Leu Cys
100 105 110

Cys Val Leu Gly Leu Leu Phe Ile Ile Leu Met Pro Leu Val Gly Tyr
115 120 125

Phe Phe Cys Met Cys Arg Cys Cys Asn Lys Cys Gly Gly Glu Met His
130 135 140

Gln Arg Gln Lys Glu Asn Gly Pro Phe Leu Arg Lys Cys Phe Ala Ile
145 150 155 160

Ser Leu Leu Val Ile Cys Ile Ile Ile Ser Ile Gly Ile Phe Tyr Gly
165 170 175

Phe Val Ala Asn His Gln Val Arg Thr Arg Ile Lys Arg Ser Arg Lys
180 185 190

Leu Ala Asp Ser Asn Phe Lys Asp Leu Arg Thr Leu Leu Asn Glu Thr
195 200 205

Pro Glu Gln Ile Lys Tyr Ile Leu Ala Gln Tyr Asn Thr Thr Lys Asp
210 215 220

Lys Ala Phe Thr Asp Leu Asn Ser Ile Asn Ser Val Leu Gly Gly Gly
225 230 235 240

Ile Leu Asp Arg Leu Arg Pro Asn Ile Ile Pro Val Leu Asp Glu Ile
 245 250 255
 Lys Ser Met Ala Thr Ala Ile Lys Glu Thr Lys Glu Ala Leu Glu Asn
 260 265 270
 Met Asn Ser Thr Leu Lys Ser Leu His Gln Gln Ser Thr Gln Leu Ser
 275 280 285
 Ser Ser Leu Thr Ser Val Lys Thr Ser Leu Arg Ser Ser Leu Asn Asp
 290 295 300
 Pro Leu Cys Leu Val His Pro Ser Ser Glu Thr Cys Asn Ser Ile Arg
 305 310 315 320
 Leu Ser Leu Ser Gln Leu Asn Ser Asn Pro Glu Leu Arg Gln Leu Pro
 325 330 335
 Pro Val Asp Ala Glu Leu Asp Asn Val Asn Asn Val Leu Arg Thr Asp
 340 345 350
 Leu Asp Gly Leu Val Gln Gln Gly Tyr Gln Ser Leu Asn Asp Ile Pro
 355 360 365
 Asp Arg Val Gln Arg Gln Thr Thr Thr Val Val Ala Gly Ile Lys Arg
 370 375 380
 Val Leu Asn Ser Ile Gly Ser Asp Ile Asp Asn Val Thr Gln Arg Leu
 385 390 395 400
 Pro Ile Gln Asp Ile Leu Ser Ala Phe Ser Val Tyr Val Asn Asn Thr
 405 410 415
 Glu Ser Tyr Ile His Arg Asn Leu Pro Thr Leu Glu Glu Tyr Asp Ser
 420 425 430
 Tyr Trp Trp Leu Gly Gly Leu Val Ile Cys Ser Leu Leu Thr Leu Ile
 435 440 445
 Val Ile Phe Tyr Tyr Leu Gly Leu Leu Cys Gly Val Cys Gly Tyr Asp
 450 455 460
 Arg His Ala Thr Pro Thr Thr Arg Gly Cys Val Ser Asn Thr Gly Gly
 465 470 475 480
 Val Phe Leu Met Val Gly Val Gly Leu Ser Phe Leu Phe Cys Trp Ile
 485 490 495
 Leu Met Ile Ile Val Val Leu Thr Phe Val Phe Gly Ala Asn Val Glu
 500 505 510
 Lys Leu Ile Cys Glu Pro Tyr Thr Ser Lys Glu Leu Phe Arg Val Leu
 515 520 525
 Asp Thr Pro Tyr Leu Leu Asn Glu Asp Trp Glu Tyr Tyr Leu Ser Gly
 530 535 540

Lys Leu Phe Asn Lys Ser Lys Met Lys Leu Thr Phe Glu Gln Val Tyr
 545 550 555 560
 Ser Asp Cys Lys Lys Asn Arg Gly Thr Tyr Gly Thr Leu His Leu Gln
 565 570 575
 Asn Ser Phe Asn Ile Ser Glu His Leu Asn Ile Asn Glu His Thr Gly
 580 585 590
 Ser Ile Ser Ser Glu Leu Glu Ser Leu Lys Val Asn Leu Asn Ile Phe
 595 600 605
 Leu Leu Gly Ala Ala Gly Arg Lys Asn Leu Gln Asp Phe Ala Ala Cys
 610 615 620
 Gly Ile Asp Arg Met Asn Tyr Asp Ser Tyr Leu Ala Gln Thr Gly Lys
 625 630 635 640
 Ser Pro Ala Gly Val Asn Leu Leu Ser Phe Ala Tyr Asp Leu Glu Ala
 645 650 655
 Lys Ala Asn Ser Leu Pro Pro Gly Asn Leu Arg Asn Ser Leu Lys Arg
 660 665 670
 Asp Ala Gln Thr Ile Lys Thr Ile His Gln Gln Arg Val Leu Pro Ile
 675 680 685
 Glu Gln Ser Leu Ser Thr Leu Tyr Gln Ser Val Lys Ile Leu Gln Arg
 690 695 700
 Thr Gly Asn Gly Leu Leu Glu Arg Val Thr Arg Ile Leu Ala Ser Leu
 705 710 715 720
 Asp Phe Ala Gln Asn Phe Ile Thr Asn Asn Thr Ser Ser Val Ile Ile
 725 730 735
 Glu Glu Thr Lys Lys Tyr Gly Arg Thr Ile Ile Gly Tyr Phe Glu His
 740 745 750
 Tyr Leu Gln Trp Ile Glu Phe Ser Ile Ser Glu Lys Val Ala Ser Cys
 755 760 765
 Lys Pro Val Ala Thr Ala Leu Asp Thr Ala Val Asp Val Phe Leu Cys
 770 775 780
 Ser Tyr Ile Ile Asp Pro Leu Asn Leu Phe Trp Phe Gly Ile Gly Lys
 785 790 795 800
 Ala Thr Val Phe Leu Leu Pro Ala Leu Ile Phe Ala Val Lys Leu Ala
 805 810 815
 Lys Tyr Tyr Arg Arg Met Asp Ser Glu Asp Val Tyr Asp Asp Val Glu
 820 825 830
 Thr Ile Pro Met Lys Asn Met Glu Asn Gly Asn Asn Gly Tyr His Lys
 835 840 845

Asp His Val Tyr Gly Ile His Asn Pro Val Met Thr Ser Pro Ser Gln
 850 855 860

His
 865

<210> 36
 <211> 857
 <212> PRT
 <213> Rattus norvegicus

<400> 36

Met Ala Leu Val Phe Ser Val Leu Leu Leu Leu Gly Leu Cys Gly Lys
 1 5 10 15

Met Ala Ser Gly Gly Gln Pro Ala Phe Asp Asn Thr Pro Gly Ala Leu
 20 25 30

Asn Tyr Glu Leu Pro Thr Thr Glu Tyr Glu Thr Gln Asp Thr Phe Asn
 35 40 45

Ala Gly Ile Ile Asp Pro Leu Tyr Gln Met Val His Ile Phe Leu Asn
 50 55 60

Val Val Gln Pro Asn Asp Phe Pro Gln Asp Leu Val Lys Lys Leu Ile
 65 70 75 80

Gln Lys Arg Phe Asp Ile Ser Val Asp Thr Lys Glu Val Ala Ile Tyr
 85 90 95

Glu Ile Gly Val Leu Ile Cys Val Ile Leu Gly Leu Leu Phe Ile Phe
 100 105 110

Leu Met Pro Leu Val Gly Phe Phe Phe Cys Met Cys Arg Cys Cys Asn
 115 120 125

Lys Cys Gly Gly Glu Met His Gln Arg Gln Lys Gln Asn Glu Ser Cys
 130 135 140

Arg Arg Lys Cys Leu Ala Ile Ser Leu Leu Leu Ile Cys Leu Leu Met
 145 150 155 160

Ser Leu Gly Ile Ala Phe Gly Phe Val Ala Asn Gln Gln Thr Arg Thr
 165 170 175

Arg Ile Gln Arg Thr Gln Lys Leu Ala Glu Ser Asn Tyr Arg Asp Leu
 180 185 190

Arg Ala Leu Leu Thr Glu Ala Pro Lys Gln Ile Asp Tyr Ile Leu Gly
 195 200 205

Gln Tyr Asn Thr Thr Lys Asn Lys Ala Phe Ser Asp Leu Asp Ser Ile
 210 215 220

Asp Ser Val Leu Gly Gly Arg Ile Lys Gly Gln Leu Lys Pro Lys Val

| | | | | | | |
|-------------|-------------------------------------|-------------------------|-----|-----|-----|-----|
| 225 | | 230 | | 235 | | 240 |
| Thr Pro Val | Leu Glu Glu Ile Lys Ala Met | Ala Thr Ala Ile Arg Gln | | | | |
| | 245 | | 250 | | 255 | |
| Thr Lys Asp | Ala Leu Gln Asn Met Ser Ser Ser | Leu Lys Ser Leu Arg | | | | |
| | 260 | 265 | | 270 | | |
| Asp Ala Ser | Thr Gln Leu Ser Thr Asn Leu Thr Ser | Val Arg Asn Ser | | | | |
| | 275 | 280 | | 285 | | |
| Ile Glu Asn | Ser Leu Asn Ser Asn Asp Cys Ala Ser | Asp Pro Ala Ser | | | | |
| | 290 | 295 | | 300 | | |
| Lys Ile Cys | Asp Ser Leu Arg Pro Gln Leu Ser Asn | Leu Gly Ser Asn | | | | |
| 305 | | 310 | | 315 | | 320 |
| His Asn Gly | Ser Gln Leu Pro Ser Val Asp Arg Glu | Leu Asn Thr Val | | | | |
| | 325 | | 330 | | 335 | |
| Asn Asp Val | Asp Arg Thr Asp Leu Glu Ser Leu Val | Lys Arg Gly Tyr | | | | |
| | 340 | | 345 | | 350 | |
| Met Ser Ile | Asp Glu Ile Pro Asn Met Ile Gln Asn | Gln Thr Gly Asp | | | | |
| | 355 | | 360 | | 365 | |
| Val Ile Lys | Asp Val Lys Lys Thr Leu Asp Ser Val | Ser Ser Lys Val | | | | |
| | 370 | | 375 | | 380 | |
| Lys Asn Met | Ser Gln Ser Ile Pro Val Glu Glu Val | Leu Leu Gln Phe | | | | |
| 385 | | 390 | | 395 | | 400 |
| Ser His Tyr | Leu Asn Asp Ser Asn Arg Tyr Ile His | Glu Ser Leu Pro | | | | |
| | 405 | | 410 | | 415 | |
| Arg Val Glu | Glu Tyr Asp Ser Tyr Trp Trp Leu Gly | Gly Leu Ile Val | | | | |
| | 420 | | 425 | | 430 | |
| Cys Phe Leu | Leu Thr Leu Ile Val Thr Phe Phe Tyr | Leu Gly Leu Leu | | | | |
| | 435 | | 440 | | 445 | |
| Cys Gly Val | Phe Gly Tyr Asp Lys Arg Ala Thr Pro | Thr Arg Arg Gly | | | | |
| | 450 | | 455 | | 460 | |
| Cys Val Ser | Asn Thr Gly Gly Ile Phe Leu Met Ala | Gly Val Gly Phe | | | | |
| 465 | | 470 | | 475 | | 480 |
| Ser Phe Leu | Phe Cys Trp Ile Leu Met Ile Leu Val | Val Leu Thr Phe | | | | |
| | 485 | | 490 | | 495 | |
| Val Val Gly | Ala Asn Val Glu Lys Leu Leu Cys Glu | Pro Tyr Glu Asn | | | | |
| | 500 | | 505 | | 510 | |
| Lys Lys Leu | Leu Gln Val Leu Asp Thr Pro Tyr Leu | Leu Asn Asp Gln | | | | |
| | 515 | | 520 | | 525 | |
| Trp Gln Phe | Tyr Leu Ser Gly Ile Leu Leu Lys Asn | Pro Asp Ile Asn | | | | |

| 530 | 535 | 540 |
|--|-----|-----|
| Met Thr Phe Glu Gln Val Tyr Arg Asp Cys Lys Arg Gly Arg Gly Val 545 550 555 560 | | |
| Tyr Ala Thr Phe Gln Leu Glu Asn Val Phe Asn Ile Thr Glu Asn Phe 565 570 575 | | |
| Asn Ile Glu Arg Leu Ser Glu Asp Ile Val Lys Glu Leu Glu Lys Leu 580 585 590 | | |
| Asn Val Asn Ile Asp Ser Ile Glu Leu Leu Asp Lys Thr Gly Arg Lys 595 600 605 | | |
| Ser Leu Glu Asp Phe Ala Gln Ser Gly Ile Asp Arg Ile Asn Tyr Ser 610 615 620 | | |
| Met Tyr Leu Gln Glu Ala Glu Lys Pro Pro Thr Lys Val Asp Leu Leu 625 630 635 640 | | |
| Thr Phe Ala Ser Phe Leu Glu Thr Glu Ala Asn Gln Leu Pro Asp Gly 645 650 655 | | |
| Asn Leu Lys Gln Ala Phe Leu Met Asp Ala Gln Asn Ile Arg Ala Ile 660 665 670 | | |
| His Gln Gln His Val Pro Pro Val Gln Gln Ser Leu Asn Ser Leu Lys 675 680 685 | | |
| Gln Ser Val Trp Ala Leu Lys Gln Thr Ser Ser Lys Leu Pro Glu Glu 690 695 700 | | |
| Val Lys Lys Val Leu Ala Ser Leu Asp Ser Ala Gln His Phe Leu Thr 705 710 715 720 | | |
| Ser Asn Leu Ser Ser Ile Val Ile Gly Glu Thr Lys Lys Phe Gly Arg 725 730 735 | | |
| Thr Ile Ile Gly Tyr Phe Glu His Tyr Leu Gln Trp Val Leu Tyr Ala 740 745 750 | | |
| Ile Thr Glu Lys Met Thr Ser Cys Lys Pro Met Ile Thr Ala Met Asp 755 760 765 | | |
| Ser Ala Val Asn Gly Ile Leu Cys Ser Tyr Val Ala Asp Pro Leu Asn 770 775 780 | | |
| Leu Phe Trp Phe Gly Ile Gly Lys Ala Thr Met Leu Leu Leu Pro Ala 785 790 795 800 | | |
| Val Ile Ile Ala Ile Lys Leu Ala Lys Tyr Tyr Arg Arg Met Asp Ser 805 810 815 | | |
| Glu Asp Val Tyr Asp Asp Val Glu Thr Val Pro Met Lys Asn Leu Glu 820 825 830 | | |
| Asn Gly Ser Asn Gly Tyr His Lys Asp His Leu Tyr Gly Val His Asn | | |

835

840

845

Pro Val Met Thr Ser Pro Ser Arg Tyr
850 855

<210> 37

<211> 867

<212> PRT

<213> Mus musculus

<400> 37

Met Ala Leu Val Phe Ser Ala Leu Leu Leu Leu Gly Leu Cys Gly Lys
1 5 10 15

Ile Ser Ser Glu Gly Gln Pro Ala Phe His Asn Thr Pro Gly Ala Met
20 25 30

Asn Tyr Glu Leu Pro Thr Thr Lys Tyr Glu Thr Gln Asp Thr Phe Asn
35 40 45

Ala Gly Ile Val Gly Pro Leu Tyr Lys Met Val His Ile Phe Leu Ser
50 55 60

Val Val Gln Pro Asn Asp Phe Pro Leu Asp Leu Ile Lys Lys Leu Ile
65 70 75 80

Gln Asn Lys Lys Phe Asp Ile Ser Val Asp Ser Lys Glu Pro Glu Ile
85 90 95

Ile Val Leu Ala Leu Lys Ile Ala Leu Tyr Glu Ile Gly Val Leu Ile
100 105 110

Cys Ala Ile Leu Gly Leu Leu Phe Ile Ile Leu Met Pro Leu Val Gly
115 120 125

Cys Phe Phe Cys Met Cys Arg Cys Cys Asn Lys Cys Gly Gly Glu Met
130 135 140

His Gln Arg Gln Lys Gln Asn Ala Pro Cys Arg Arg Lys Cys Leu Gly
145 150 155 160

Leu Ser Leu Leu Val Ile Cys Leu Leu Met Ser Leu Gly Ile Ile Tyr
165 170 175

Gly Phe Val Ala Asn Gln Gln Thr Arg Thr Arg Ile Lys Gly Thr Gln
180 185 190

Lys Leu Ala Lys Ser Asn Phe Arg Asp Phe Gln Thr Leu Leu Thr Glu
195 200 205

Thr Pro Lys Gln Ile Asp Tyr Val Val Glu Gln Tyr Thr Asn Thr Lys
210 215 220

Asn Lys Ala Phe Ser Asp Leu Asp Gly Ile Gly Ser Val Leu Gly Gly
225 230 235 240

Arg Ile Lys Asp Gln Leu Lys Pro Lys Val Thr Pro Val Leu Glu Glu
 245 250 255
 Ile Lys Ala Met Ala Thr Ala Ile Lys Gln Thr Lys Asp Ala Leu Gln
 260 265 270
 Asn Met Ser Ser Ser Leu Lys Ser Leu Gln Asp Ala Ala Thr Gln Leu
 275 280 285
 Asn Thr Asn Leu Ser Ser Val Arg Asn Ser Ile Glu Asn Ser Leu Ser
 290 295 300
 Ser Ser Asp Cys Thr Ser Asp Pro Ala Ser Lys Ile Cys Asp Ser Ile
 305 310 315 320
 Arg Pro Ser Leu Ser Ser Leu Gly Ser Ser Leu Asn Ser Ser Gln Leu
 325 330 335
 Pro Ser Val Asp Arg Glu Leu Asn Thr Val Thr Glu Val Asp Lys Thr
 340 345 350
 Asp Leu Glu Ser Leu Val Lys Arg Gly Tyr Thr Thr Ile Asp Glu Ile
 355 360 365
 Pro Asn Thr Ile Gln Asn Gln Thr Val Asp Val Ile Lys Asp Val Lys
 370 375 380
 Asn Thr Leu Asp Ser Ile Ser Ser Asn Ile Lys Asp Met Ser Gln Ser
 385 390 395 400
 Ile Pro Ile Glu Asp Met Leu Leu Gln Val Ser His Tyr Leu Asn Asn
 405 410 415
 Ser Asn Arg Tyr Leu Asn Gln Glu Leu Pro Lys Leu Glu Glu Tyr Asp
 420 425 430
 Ser Tyr Trp Trp Leu Gly Gly Leu Ile Val Cys Phe Leu Leu Thr Leu
 435 440 445
 Ile Val Thr Phe Phe Phe Leu Gly Leu Leu Cys Gly Val Phe Gly Tyr
 450 455 460
 Asp Lys His Ala Thr Pro Thr Arg Arg Gly Cys Val Ser Asn Thr Gly
 465 470 475 480
 Gly Ile Phe Leu Met Ala Gly Val Gly Phe Gly Phe Leu Phe Cys Trp
 485 490 495
 Ile Leu Met Ile Leu Val Val Leu Thr Phe Val Val Gly Ala Asn Val
 500 505 510
 Glu Lys Leu Leu Cys Glu Pro Tyr Glu Asn Lys Lys Leu Leu Gln Val
 515 520 525
 Leu Asp Thr Pro Tyr Leu Leu Lys Glu Gln Trp Gln Phe Tyr Leu Ser
 530 535 540

Gly Met Leu Phe Asn Asn Pro Asp Ile Asn Met Thr Phe Glu Gln Val
 545 550 555 560
 Tyr Arg Asp Cys Lys Arg Gly Arg Gly Ile Tyr Ala Ala Phe Gln Leu
 565 570 575
 Glu Asn Val Val Asn Val Ser Asp His Phe Asn Ile Asp Gln Ile Ser
 580 585 590
 Glu Asn Ile Asn Thr Glu Leu Glu Asn Leu Asn Val Asn Ile Asp Ser
 595 600 605
 Ile Glu Leu Leu Asp Asn Thr Gly Arg Lys Ser Leu Glu Asp Phe Ala
 610 615 620
 His Ser Gly Ile Asp Thr Ile Asp Tyr Ser Thr Tyr Leu Lys Glu Thr
 625 630 635 640
 Glu Lys Ser Pro Thr Glu Val Asn Leu Leu Thr Phe Ala Ser Thr Leu
 645 650 655
 Glu Ala Lys Ala Asn Gln Leu Pro Glu Gly Lys Pro Lys Gln Ala Phe
 660 665 670
 Leu Leu Asp Val Gln Asn Ile Arg Ala Ile His Gln His Leu Leu Pro
 675 680 685
 Pro Val Gln Gln Ser Leu Asn Thr Leu Arg Gln Ser Val Trp Thr Leu
 690 695 700
 Gln Gln Thr Ser Asn Lys Leu Pro Glu Lys Val Lys Lys Ile Leu Ala
 705 710 715 720
 Ser Leu Asp Ser Val Gln His Phe Leu Thr Asn Asn Val Ser Leu Ile
 725 730 735
 Val Ile Gly Glu Thr Lys Lys Phe Gly Lys Thr Ile Leu Gly Tyr Phe
 740 745 750
 Glu His Tyr Leu His Trp Val Phe Tyr Ala Ile Thr Glu Lys Met Thr
 755 760 765
 Ser Cys Lys Pro Met Ala Thr Ala Met Asp Ser Ala Val Asn Gly Ile
 770 775 780
 Leu Cys Gly Tyr Val Ala Asp Pro Leu Asn Leu Phe Trp Phe Gly Ile
 785 790 795 800
 Gly Lys Ala Thr Val Leu Leu Leu Pro Ala Val Ile Ile Ala Ile Lys
 805 810 815
 Leu Ala Lys Tyr Tyr Arg Arg Met Asp Ser Glu Asp Val Tyr Asp Asp
 820 825 830
 Val Glu Thr Val Pro Met Lys Asn Leu Glu Ile Gly Ser Asn Gly Tyr
 835 840 845

His Lys Asp His Leu Tyr Gly Val His Asn Pro Val Met Thr Ser Pro
 850 855 860

Ser Arg Tyr
 865

<210> 38
 <211> 331
 <212> PRT
 <213> Homo sapiens

<400> 38
 Met Glu Asn Pro Ser Pro Ala Ala Ala Leu Gly Lys Ala Leu Cys Ala
 1 5 10 15
 Leu Leu Leu Ala Thr Leu Gly Ala Ala Gly Gln Pro Leu Gly Gly Glu
 20 25 30
 Ser Ile Cys Ser Ala Arg Ala Pro Ala Lys Tyr Ser Ile Thr Phe Thr
 35 40 45
 Gly Lys Trp Ser Gln Thr Ala Phe Pro Lys Gln Tyr Pro Leu Phe Arg
 50 55 60
 Pro Pro Ala Gln Trp Ser Ser Leu Leu Gly Ala Ala His Ser Ser Asp
 65 70 75 80
 Tyr Ser Met Trp Arg Lys Asn Gln Tyr Val Ser Asn Gly Leu Arg Asp
 85 90 95
 Phe Ala Glu Arg Gly Glu Ala Trp Ala Leu Met Lys Glu Ile Glu Ala
 100 105 110
 Ala Gly Glu Ala Leu Gln Ser Val His Ala Val Phe Ser Ala Pro Ala
 115 120 125
 Val Pro Ser Gly Thr Gly Gln Thr Ser Ala Glu Leu Glu Val Gln Arg
 130 135 140
 Arg His Ser Leu Val Ser Phe Val Val Arg Ile Val Pro Ser Pro Asp
 145 150 155 160
 Trp Phe Val Gly Val Asp Ser Leu Asp Leu Cys Asp Gly Asp Arg Trp
 165 170 175
 Arg Glu Gln Ala Ala Leu Asp Leu Tyr Pro Tyr Asp Ala Gly Thr Asp
 180 185 190
 Ser Gly Phe Thr Phe Ser Ser Pro Asn Phe Ala Thr Ile Pro Gln Asp
 195 200 205
 Thr Val Thr Glu Ile Thr Ser Ser Ser Pro Ser His Pro Ala Asn Ser
 210 215 220
 Phe Tyr Tyr Pro Arg Leu Lys Ala Leu Pro Pro Ile Ala Arg Val Thr
 225 230 235 240

Leu Val Arg Leu Arg Gln Ser Pro Arg Ala Phe Ile Pro Pro Ala Pro
 245 250 255
 Val Leu Pro Ser Arg Asp Asn Glu Ile Val Asp Ser Ala Ser Val Pro
 260 265 270
 Glu Thr Pro Leu Asp Cys Glu Val Ser Leu Trp Ser Ser Trp Gly Leu
 275 280 285
 Cys Gly Gly His Cys Gly Arg Leu Gly Thr Lys Ser Arg Thr Arg Tyr
 290 295 300
 Val Arg Val Gln Pro Ala Asn Asn Gly Ser Pro Cys Pro Glu Leu Glu
 305 310 315 320
 Glu Glu Ala Glu Cys Val Pro Asp Asn Cys Val
 325 330

<210> 39
 <211> 331
 <212> PRT
 <213> Homo sapiens

<400> 39

Met Glu Asn Pro Ser Pro Ala Ala Ala Leu Gly Lys Ala Leu Cys Ala
 1 5 10 15
 Leu Leu Leu Ala Thr Leu Gly Ala Ala Gly Gln Pro Leu Gly Gly Glu
 20 25 30
 Ser Ile Cys Ser Ala Arg Ala Leu Ala Lys Tyr Ser Ile Thr Phe Thr
 35 40 45
 Gly Lys Trp Ser Gln Thr Ala Phe Pro Lys Gln Tyr Pro Leu Phe Arg
 50 55 60
 Pro Pro Ala Gln Trp Ser Ser Leu Leu Gly Ala Ala His Ser Ser Asp
 65 70 75 80
 Tyr Ser Met Trp Arg Lys Asn Gln Tyr Val Ser Asn Gly Leu Arg Asp
 85 90 95
 Phe Ala Glu Arg Gly Glu Ala Trp Ala Leu Met Lys Glu Ile Glu Ala
 100 105 110
 Ala Gly Glu Ala Leu Gln Ser Val His Ala Val Phe Ser Ala Pro Ala
 115 120 125
 Val Pro Ser Gly Thr Gly Gln Thr Ser Ala Glu Leu Glu Val Gln Arg
 130 135 140
 Arg His Ser Leu Val Ser Phe Val Val Arg Ile Val Pro Ser Pro Asp
 145 150 155 160
 Trp Phe Val Gly Val Asp Ser Leu Asp Leu Cys Asp Gly Asp Arg Trp

| 165 | | | | | | | | | | 170 | | | | | 175 | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Arg | Glu | Gln | Ala | Ala | Leu | Asp | Leu | Tyr | Pro | Tyr | Asp | Ala | Gly | Thr | Asp | | | | | | | | | | | | | | | |
| | | | 180 | | | | | 185 | | | | | 190 | | | | | | | | | | | | | | | | | |
| Ser | Gly | Phe | Thr | Phe | Ser | Ser | Pro | Asn | Phe | Ala | Thr | Ile | Pro | Gln | Asp | | | | | | | | | | | | | | | |
| | | 195 | | | | | 200 | | | | | 205 | | | | | | | | | | | | | | | | | | |
| Thr | Val | Thr | Glu | Ile | Thr | Ser | Ser | Ser | Pro | Ser | His | Pro | Ala | Asn | Ser | | | | | | | | | | | | | | | |
| | 210 | | | | | 215 | | | | | 220 | | | | | | | | | | | | | | | | | | | |
| Phe | Tyr | Tyr | Pro | Arg | Leu | Lys | Ala | Leu | Pro | Pro | Ile | Ala | Arg | Val | Thr | | | | | | | | | | | | | | | |
| 225 | | | | | 230 | | | | 235 | | | | | | 240 | | | | | | | | | | | | | | | |
| Leu | Val | Arg | Leu | Arg | Gln | Ser | Pro | Arg | Ala | Phe | Ile | Pro | Pro | Ala | Pro | | | | | | | | | | | | | | | |
| | | | | 245 | | | | | 250 | | | | | 255 | | | | | | | | | | | | | | | | |
| Val | Leu | Pro | Ser | Arg | Asp | Asn | Glu | Ile | Val | Asp | Ser | Ala | Ser | Val | Pro | | | | | | | | | | | | | | | |
| | | | 260 | | | | 265 | | | | | | 270 | | | | | | | | | | | | | | | | | |
| Glu | Thr | Pro | Leu | Asp | Cys | Glu | Val | Ser | Leu | Trp | Ser | Ser | Trp | Gly | Leu | | | | | | | | | | | | | | | |
| | 275 | | | | | 280 | | | | | 285 | | | | | | | | | | | | | | | | | | | |
| Cys | Gly | Gly | His | Cys | Gly | Arg | Leu | Gly | Thr | Lys | Ser | Arg | Thr | Arg | Tyr | | | | | | | | | | | | | | | |
| | 290 | | | | | 295 | | | | 300 | | | | | | | | | | | | | | | | | | | | |
| Val | Arg | Val | Gln | Pro | Ala | Asn | Asn | Gly | Ser | Pro | Cys | Pro | Glu | Leu | Glu | | | | | | | | | | | | | | | |
| 305 | | | | | 310 | | | | 315 | | | | | 320 | | | | | | | | | | | | | | | | |
| Glu | Glu | Ala | Glu | Cys | Val | Pro | Asp | Asn | Cys | Val | | | | | | | | | | | | | | | | | | | | |
| | | | | 325 | | | | 330 | | | | | | | | | | | | | | | | | | | | | | |

<210> 40
 <211> 331
 <212> PRT
 <213> Homo sapiens

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| <400> 40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Met | Glu | Asn | Pro | Ser | Pro | Ala | Ala | Ala | Leu | Gly | Lys | Ala | Leu | Cys | Ala | | | | | | | | | | | | | | | |
| 1 | | | | 5 | | | | | 10 | | | | 15 | | | | | | | | | | | | | | | | | |
| Leu | Leu | Leu | Ala | Thr | Leu | Gly | Ala | Ala | Gly | Gln | Pro | Leu | Gly | Gly | Glu | | | | | | | | | | | | | | | |
| | | | 20 | | | | 25 | | | | | 30 | | | | | | | | | | | | | | | | | | |
| Ser | Ile | Cys | Ser | Ala | Arg | Ala | Pro | Ala | Lys | Tyr | Ser | Ile | Thr | Phe | Thr | | | | | | | | | | | | | | | |
| | 35 | | | | | 40 | | | | | 45 | | | | | | | | | | | | | | | | | | | |
| Gly | Lys | Trp | Ser | Gln | Thr | Ala | Phe | Pro | Lys | Gln | Tyr | Pro | Leu | Phe | Arg | | | | | | | | | | | | | | | |
| | 50 | | | | 55 | | | | | 60 | | | | | | | | | | | | | | | | | | | | |
| Pro | Pro | Ala | Gln | Trp | Ser | Ser | Leu | Leu | Gly | Ala | Ala | His | Ser | Ser | Asp | | | | | | | | | | | | | | | |
| 65 | | | | 70 | | | | | 75 | | | | | 80 | | | | | | | | | | | | | | | | |
| Tyr | Ser | Met | Trp | Arg | Lys | Asn | Gln | Tyr | Val | Ser | Asn | Gly | Leu | Arg | Asp | | | | | | | | | | | | | | | |
| | | | | 85 | | | | 90 | | | | | 95 | | | | | | | | | | | | | | | | | |

Phe Ala Glu Arg Gly Glu Ala Trp Ala Leu Met Lys Glu Ile Glu Ala
 100 105 110
 Ala Gly Glu Ala Leu Gln Ser Val His Glu Val Phe Ser Ala Pro Ala
 115 120 125
 Val Pro Ser Gly Thr Gly Gln Thr Ser Ala Glu Leu Glu Val Gln Arg
 130 135 140
 Arg His Ser Leu Val Ser Phe Val Val Arg Ile Val Pro Ser Pro Asp
 145 150 155 160
 Trp Phe Val Gly Val Asp Ser Leu Asp Leu Cys Asp Gly Asp Arg Trp
 165 170 175
 Arg Glu Gln Ala Ala Leu Asp Leu Tyr Pro Tyr Asp Ala Gly Thr Asp
 180 185 190
 Ser Gly Phe Thr Phe Ser Ser Pro Asn Phe Ala Thr Ile Pro Gln Asp
 195 200 205
 Thr Val Thr Glu Ile Thr Ser Ser Ser Pro Ser His Pro Ala Asn Ser
 210 215 220
 Phe Tyr Tyr Pro Arg Leu Lys Ala Leu Pro Pro Ile Ala Arg Val Thr
 225 230 235 240
 Leu Leu Arg Leu Arg Gln Ser Pro Arg Ala Phe Ile Pro Pro Ala Pro
 245 250 255
 Val Leu Pro Ser Arg Asp Asn Glu Ile Val Asp Ser Ala Ser Val Pro
 260 265 270
 Glu Thr Pro Leu Asp Cys Glu Val Ser Leu Trp Ser Ser Trp Gly Leu
 275 280 285
 Cys Gly Gly His Cys Gly Arg Leu Gly Thr Lys Ser Arg Thr Arg Tyr
 290 295 300
 Val Arg Val Gln Pro Ala Asn Asn Gly Ser Pro Cys Pro Glu Leu Glu
 305 310 315 320
 Glu Glu Ala Glu Cys Val Pro Asp Asn Cys Val
 325 330

<210> 41
 <211> 330
 <212> PRT
 <213> Rattus norvegicus

<400> 41
 Met Glu Asn Val Ser Phe Ser Leu Asp Arg Thr Leu Trp Val Phe Leu
 1 5 10 15

Leu Ala Met Leu Gly Ser Thr Ala Gly Gln Pro Leu Gly Gly Glu Ser
 20 25 30

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Cys | Thr | Ala | Arg | Pro | Leu | Ala | Arg | Tyr | Ser | Ile | Thr | Phe | Thr | Gly | 35 | 40 | 45 | |
| Lys | Trp | Ser | Gln | Thr | Ala | Phe | Pro | Lys | Gln | Tyr | Pro | Leu | Phe | Arg | Pro | 50 | 55 | 60 | |
| Pro | Ala | Gln | Trp | Ser | Ser | Leu | Leu | Gly | Ala | Ala | His | Ser | Ser | Asp | Tyr | 65 | 70 | 75 | 80 |
| Ser | Met | Trp | Arg | Lys | Asn | Glu | Tyr | Val | Ser | Asn | Gly | Leu | Arg | Asp | Phe | 85 | 90 | 95 | |
| Ala | Glu | Arg | Gly | Glu | Ala | Trp | Ala | Leu | Met | Lys | Glu | Ile | Glu | Ala | Ala | 100 | 105 | 110 | |
| Gly | Glu | Lys | Leu | Gln | Ser | Val | His | Ala | Val | Phe | Ser | Ala | Pro | Ala | Val | 115 | 120 | 125 | |
| Pro | Ser | Gly | Thr | Gly | Gln | Thr | Ser | Ala | Glu | Leu | Glu | Val | His | Pro | Arg | 130 | 135 | 140 | |
| His | Ser | Leu | Val | Ser | Phe | Val | Val | Arg | Ile | Val | Pro | Ser | Pro | Asp | Trp | 145 | 150 | 155 | 160 |
| Phe | Val | Gly | Ile | Asp | Ser | Leu | Asp | Leu | Cys | Glu | Gly | Gly | Arg | Trp | Lys | 165 | 170 | 175 | |
| Glu | Gln | Val | Val | Leu | Asp | Leu | Tyr | Pro | His | Asp | Ala | Gly | Thr | Asp | Ser | 180 | 185 | 190 | |
| Gly | Phe | Thr | Phe | Ser | Ser | Pro | Asn | Phe | Ala | Thr | Ile | Pro | Gln | Asp | Thr | 195 | 200 | 205 | |
| Val | Thr | Glu | Ile | Thr | Ala | Ser | Ser | Pro | Ser | His | Pro | Ala | Asn | Ser | Phe | 210 | 215 | 220 | |
| Tyr | Tyr | Pro | Arg | Leu | Lys | Ser | Leu | Pro | Pro | Ile | Ala | Lys | Val | Thr | Phe | 225 | 230 | 235 | 240 |
| Val | Arg | Leu | Arg | Gln | Ser | Pro | Arg | Ala | Phe | Ala | Pro | Pro | Ser | Leu | Asp | 245 | 250 | 255 | |
| Leu | Ala | Ser | Arg | Gly | Asn | Glu | Ile | Val | Asp | Ser | Leu | Ser | Val | Pro | Glu | 260 | 265 | 270 | |
| Thr | Pro | Leu | Asp | Cys | Glu | Val | Ser | Leu | Trp | Ser | Ser | Trp | Gly | Leu | Cys | 275 | 280 | 285 | |
| Gly | Gly | Pro | Cys | Gly | Lys | Leu | Gly | Ala | Lys | Ser | Arg | Thr | Arg | Tyr | Val | 290 | 295 | 300 | |
| Arg | Val | Gln | Pro | Ala | Asn | Asn | Gly | Thr | Pro | Cys | Pro | Glu | Leu | Glu | Glu | 305 | 310 | 315 | 320 |
| Glu | Ala | Glu | Cys | Ala | Pro | Asp | Asn | Cys | Val | | | | | | | 325 | 330 | | |

<210> 42
 <211> 331
 <212> PRT
 <213> Danio rerio

<400> 42

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Glu | Thr | Met | Thr | Ser | Leu | Arg | Val | Asn | Cys | Trp | Leu | Thr | Met | Thr |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Leu | Ala | Leu | Leu | Ser | Gly | Val | Pro | Ala | Met | Pro | Val | Asp | Val | Asp | Arg |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Met | Cys | Thr | Ala | Pro | Ser | Thr | Ala | Lys | Tyr | Arg | Leu | Thr | Phe | Thr | Gly |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Gln | Trp | Thr | Gln | Thr | Ala | Phe | Pro | Lys | His | Tyr | Pro | Leu | Tyr | Arg | Pro |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Pro | Ala | Gln | Trp | Ser | Pro | Leu | Ile | Gly | Val | Thr | His | Ser | Ser | Asp | Tyr |
| | 65 | | | | 70 | | | | | 75 | | | | | 80 |
| His | Leu | Trp | Gln | Arg | Asn | Glu | Tyr | Ala | Ser | Asn | Gly | Val | Arg | Glu | Phe |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ser | Glu | Arg | Ala | Glu | Ala | Trp | Thr | Leu | Ile | Lys | Glu | Val | Glu | Ala | Ala |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Gly | Glu | Arg | Ile | Gln | Ser | Val | Tyr | Gly | Leu | Phe | Ser | Ala | Pro | Ala | Val |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Val | Ala | Gly | Thr | Gly | His | Ala | Thr | Thr | Glu | Phe | Glu | Val | Phe | Ala | Arg |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| His | Ser | Leu | Leu | Ser | Phe | Ile | Val | Arg | Ile | Val | Pro | Ser | Pro | Asp | Trp |
| | 145 | | | | 150 | | | | | 155 | | | | | 160 |
| Phe | Ile | Gly | Val | Asp | Ser | Leu | Asn | Leu | Cys | Glu | Gly | Asp | His | Gly | Lys |
| | | | 165 | | | | | 170 | | | | | 175 | | |
| Glu | Asn | Ile | Ser | Leu | Glu | Leu | Tyr | Pro | Tyr | Asp | Ala | Gly | Thr | Asp | Ser |
| | | 180 | | | | | | 185 | | | | | 190 | | |
| Gly | Phe | Thr | Phe | Ser | Ser | Pro | Asn | Phe | Glu | Thr | Ile | Pro | Gln | Asp | Lys |
| | | 195 | | | | | 200 | | | | | | 205 | | |
| Val | Thr | Gln | Ile | Thr | Ser | Ser | Phe | Pro | Ser | His | Pro | Ala | Asn | Ser | Phe |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Tyr | Tyr | Pro | Arg | Leu | Lys | His | Leu | Pro | Pro | Ile | Ala | Lys | Val | Ser | Leu |
| | 225 | | | | 230 | | | | | 235 | | | | | 240 |
| Thr | Lys | Ile | Lys | Asn | Asn | Gln | Ile | Phe | Ser | Leu | Pro | Ile | Gln | Pro | Thr |
| | | | | 245 | | | | 250 | | | | | 255 | | |
| Gln | Ser | Asn | Gln | Ile | Pro | Ser | Gly | Asn | Glu | Ile | Asp | Gly | Pro | Leu | Ile |

Ser Gly Phe Leu Val Ser Gly Thr Phe Asp Ala Arg Gly Gly Arg Leu
 1 5 10 15
 Arg Gly Pro Arg Thr Gly Val Arg Leu Ile Ile Pro Pro Gly Ala Ile
 20 25 30
 Pro Gln Gly Thr Arg Tyr Thr Cys Tyr Leu Val Val His Asp Lys Leu
 35 40 45
 Ser Thr Pro Pro Pro Leu Glu Gly Glu Thr Leu Leu Ser Pro Val
 50 55 60
 Val Glu Cys Gly Pro His Gly Ala Leu Phe Leu Arg Pro Val Ile Leu
 65 70 75 80
 Glu Val Pro His Cys Ala Ser Leu Arg Pro Arg Asp Trp Glu Leu Val
 85 90 95
 Leu Leu Arg Ser Glu Asn Gly Gly
 100

<210> 45
 <211> 96
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DEATH domain
 Consensus Sequence

<400> 45
 Pro Pro Gly Ala Ala Ser Leu Thr Glu Leu Thr Arg Glu Lys Leu Ala
 1 5 10 15
 Lys Leu Leu Asp His Asp Leu Gly Asp Asp Trp Arg Glu Leu Ala Arg
 20 25 30
 Lys Leu Gly Leu Ser Glu Ala Asp Ile Asp Gln Ile Glu Thr Glu Ser
 35 40 45
 Pro Arg Asp Leu Ala Glu Gln Ser Tyr Gln Leu Leu Arg Leu Trp Glu
 50 55 60
 Gln Arg Glu Gly Lys Asn Ala Thr Leu Gly Thr Leu Leu Glu Ala Leu
 65 70 75 80
 Arg Lys Met Gly Arg Asp Asp Ala Val Glu Leu Leu Arg Ser Glu Leu
 85 90 95

<210> 46
 <211> 51
 <212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: TSP1 domain
Consensus Sequence

<400> 46

Trp Gly Glu Trp Ser Glu Trp Ser Pro Cys Ser Val Thr Cys Gly Gly
1 5 10 15

Gly Val Gln Thr Arg Thr Arg Cys Cys Asn Pro Pro Pro Asn Gly Gly
20 25 30

Gly Pro Cys Thr Gly Pro Asp Thr Glu Thr Arg Ala Cys Asn Glu Gln
35 40 45

Pro Cys Pro
50

<210> 47

<211> 83

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Death domain
Consensus Sequence

<400> 47

Arg Glu Leu Cys Lys Leu Leu Asp Asp Pro Leu Gly Arg Asp Trp Arg
1 5 10 15

Arg Leu Ala Arg Lys Leu Gly Leu Ser Glu Glu Glu Ile Asp Gln Ile
20 25 30

Glu His Glu Asn Pro Arg Leu Ala Ser Pro Thr Tyr Gln Leu Leu Asp
35 40 45

Leu Trp Glu Gln Arg Gly Gly Lys Asn Ala Thr Val Gly Thr Leu Leu
50 55 60

Glu Ala Leu Arg Lys Met Gly Arg Asp Asp Ala Val Glu Leu Leu Glu
65 70 75 80

Ser Ala Leu

<210> 48

<211> 86

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: IG domain
Consensus Sequence

<400> 48

Pro Pro Ser Val Thr Val Lys Glu Gly Glu Ser Val Thr Leu Ser Cys
1 5 10 15
Glu Ala Ser Gly Asn Pro Pro Pro Thr Val Thr Trp Tyr Lys Gln Gly
20 25 30
Gly Lys Leu Leu Ala Glu Ser Gly Arg Phe Ser Val Ser Arg Ser Gly
35 40 45
Gly Asn Ser Thr Leu Thr Ile Ser Asn Val Thr Pro Glu Asp Ser Gly
50 55 60
Thr Tyr Thr Cys Ala Ala Thr Asn Ser Ser Gly Ser Ala Ser Ser Gly
65 70 75 80
Thr Thr Leu Thr Val Leu
85

<210> 49

<211> 51

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: LRRCT domain
Consensus Sequence

<400> 49

Asn Pro Phe Ile Cys Asp Cys Glu Leu Arg Trp Leu Leu Arg Trp Leu
1 5 10 15
Arg Glu Pro Arg Arg Leu Glu Asp Pro Glu Asp Leu Arg Cys Ala Ser
20 25 30
Pro Glu Ser Leu Arg Gly Pro Leu Leu Glu Leu Leu Pro Ser Asp Phe
35 40 45
Ser Cys Pro
50

<210> 50

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Ag1395 Forward
Primer

<400> 50

ctgcacttca aggacagtta cc

22

<210> 51
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Ag1395 Probe
Primer

<400> 51
ctatccatcc acgatgtgcc cagct

25

<210> 52
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Ag1395 Reverse
Primer

<400> 52
tgacaaggag cttactcttc ca

22

<210> 53
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Ag395 Forward
Primer

<400> 53
caggaagaaa taagccaagt cca

23

<210> 54
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Ag395 Probe
Primer

<400> 54
tccttggcct cccgcctgc

19

<210> 55
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Ag395 Reverse
 Primer

<400> 55
 gaggtcatgt tctagcttcc catt 24

<210> 56
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Ag888 Forward
 Primer

<400> 56
 catagctgac cgcacatcgaa 20

<210> 57
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Ag888 Probe
 Primer

<400> 57
 aatgctccat ctccttggct gactga 26

<210> 58
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Ag888 Reverse
 Primer

<400> 58
 ggagctagca tccatcatca c 21

<210> 59
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Ag784 Forward
 Primer

<400> 59

gtcctgggat gtgtgagaga t

21

<210> 60

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Ag784 Probe
Primer

<400> 60

cagagagacg cagctcctcc aagaag

26

<210> 61

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Ag784 Reverse
Primer

<400> 61

gaacaacctc acagagcttc ag

22

<210> 62

<211> 104

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: ZU5 domain
Consensus Sequence

<400> 62

Pro Ser Phe Leu Val Ser Gly Thr Phe Asp Ala Arg Gly Gly Arg Leu
1 5 10 15

Arg Gly Pro Arg Thr Gly Val Arg Leu Ile Ile Pro Pro Gly Ala Ile
20 25 30

Pro Gln Gly Thr Arg Tyr Thr Cys Tyr Leu Val Val His Asp Lys Leu
35 40 45

Ser Thr Pro Pro Pro Leu Glu Glu Gly Glu Thr Leu Leu Ser Pro Val
50 55 60

Val Glu Cys Gly Pro His Gly Ala Leu Phe Leu Arg Pro Val Ile Leu
65 70 75 80

Glu Val Pro His Cys Ala Ser Leu Arg Pro Arg Asp Trp Glu Ile Val
85 90 95

Leu Leu Arg Ser Glu Asn Gly Gly
100